User's Manual

ColorEdge®
ColorNavigator™

Important

Please read this User's Manual carefully to familiarize yourself with safe and effective usage.

- **The latest software and User's Manual are available for download from our web site:**
  http://www.eizo.com

EIZO®

About This Manual

This manual describes the features, installation, and usage of ColorNavigator (monitor adjustment software for LCD monitor).
This manual consists of the following four sections.

INSTALLATION	Describes software introductory information such as how to install it and how to connect with the measurement device and the monitor.	P.5
BASIC	Describes basic software operations necessary to adjust the monitor.	P.18
APPLICATION	Describes applicable operations such as manual adjustment and profile emulation.	P.44
REFERENCE	Provides supplementary explanations and reference information such as SelfCalibration settings and troubleshooting.	P.64

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Although every effort has been made to ensure that this manual provides up-to-date information, please note that EIZO monitor specifications are subject to change without notice.

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INSTALLATION

Chapter 1 Introduction

1-1. About ColorNavigator

ColorNavigator is a monitor adjustment software for the ColorEdge series monitors. It allows you to easily perform accurate monitor adjustments.
*Please prepare the measurement device and the light booth separately.

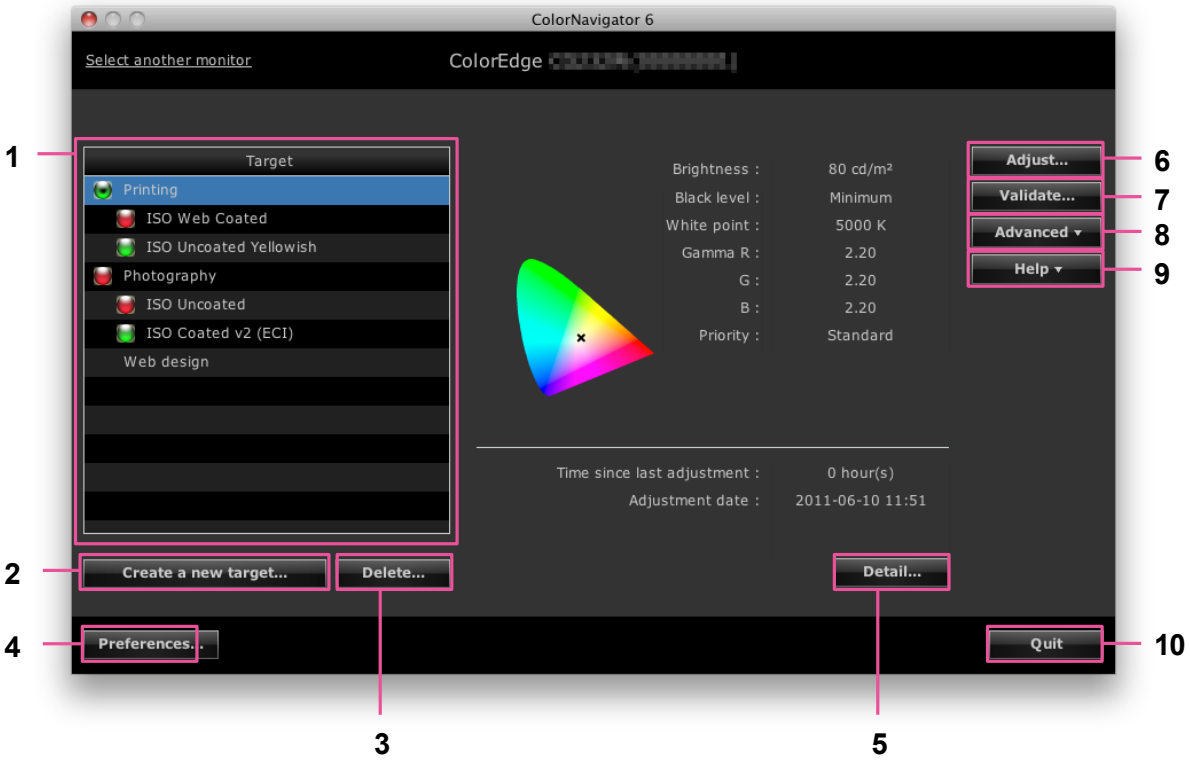
1-2. Features

- Allows you to adjust the ColorEdge series monitor easily.
- Allows you to specify the target values for the brightness, white point, gamma, and black level of the monitor precisely.
- L* is available as the target of gamma.
- Displays the measurement result with CIE-chromaticity diagram.
- Generates ICC profiles (for Windows) / Apple ColorSync profiles (for Macintosh) based on the measurement result.
- Manual adjustment function (white point/brightness/black level/gamma/6 colors)
- Allows you to create an adjustment target based on the paper white or other measurement results.*1
  *1 The function's availability depends on the measurement device or usage.
- Emulation of Monitor Display based on the profile (not applicable to some monitor types)
- Supports built-in calibration sensor*2
  - Sets the target and schedule for SelfCalibration.
  - Correlates the measurement result from the built-in calibration sensor with the measurement results from other measurement devices.

  *2 This function is available for monitors with a built-in calibration sensor only. For details, see "Chapter 11 Making Use of the Built-in Calibration Sensor" (page 65).
- Profiling monitor validation
  - Validates with RGB/CMYK color patch.
  - Outputs validation results.
  - Reads RGB/CMYK color patch files.
- Switching monitor display
  - Switches monitor display based on the monitor adjustment result.
- Supporting monitor adjustment function with timer setting
- Supporting a multi monitor environment
- Showing Patterns
- Adjusting a light booth*3
  *3 About the supported models, see "9-6. Adjusting Light Booth" (page 57).
- System-resident function
  - Allows you easy access to frequently used functions.

1-3. Main Window

Select an operation on the main window which is displayed when the software is started.



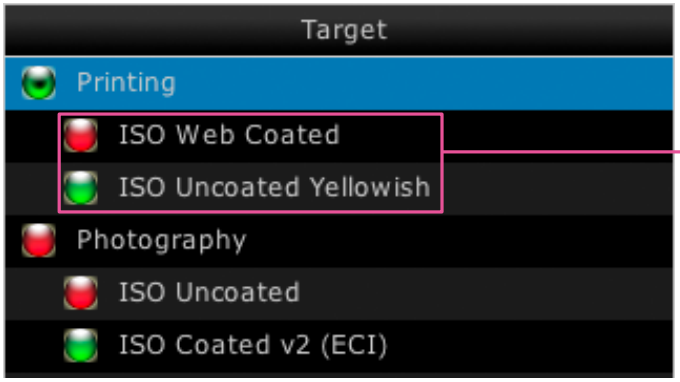
The selectable functions on the main window are as follows.

1	Target list	Lists the adjustment targets.		
2	“Create a new target” button	Allows you to create an adjustment target.	BASIC	“Chapter 5 Creating Adjustment Target” (page 28)
3	“Delete” button	Deletes an adjustment target.	REFERENCE	“12-4. Managing Adjusted Targets.” (page 77)
4	“Preferences” button	Opens the “Preferences” dialog box.	BASIC APPLICATION REFERENCE	“6-2. Timer” (page 40) “Chapter 8 Setting Monitor Validation” (page 45) “12-5. Checking the Latest Software” (page 78)
5	“Detail” button	Shows the detail window.	REFERENCE	“12-6. Displaying Detailed Information of Adjustment Target / Result and Validation Record” (page 79)
6	“Adjust” button	Allows you to start monitor adjustment.	BASIC	“Chapter 4 Adjusting Monitor” (page 21)
7	“Validate” button	Allows you to start monitor validation.	BASIC	“Chapter 7 Validating Adjustment Status of Monitor” (page 42)
8	“Advanced” button	Provides advanced functions.		
	Import target	Allows you to import the adjustment target.	APPLICATION	“9-1. Exporting and Importing the Adjustment Target” (page 48)
	Export target	Allows you to export the adjustment target.		
	Adjust manually	Allows you to adjust the monitor manually.	APPLICATION	“9-5. Manual Adjustment” (page 53)
	Light booth adjustment	Allows you to adjust the light booth.	APPLICATION	“9-6. Adjusting Light Booth” (page 57)
	Profile emulation	Allows you to emulate the profile.	APPLICATION	“9-4. Creating Adjustment Target for Profile Emulation” (page 52)
	Test pattern	Shows the test pattern.	REFERENCE	“Displaying Test Patterns” (page 80)
	SelfCalibration schedule	Allows you to set the SelfCalibration schedule.	REFERENCE	“11-3. Setting the SelfCalibration Schedule” (page 69)
	Sensor correlation	Allows you to correlate the built-in calibration sensor with the reference measurement device.	REFERENCE	“11-2. Correlate with the Reference Measurement Device” (page 65)
	Monitor gamut	Allows you to update the monitor gamut.	APPLICATION	“10-2. Updating the Gamut” (page 63)
	Profile policy	Shows the policy for creating the profile of each adjustment target.		
9	Help	Provides the help information.		
	User’s manual	Shows the User’s Manual (this document).		
	Monitor information	Shows the monitor information.	REFERENCE	“Showing Monitor Information” (page 79)
	Version	Shows the version information.	BASIC	“3-2. Displaying Software Version” (page 20)
10	Quit	Closes the main window.		

● About Marks

The marks in the target list show the status of the target. About the timer threshold, see “6-2. Timer” (page 40).

Mark	Monitor Setting	Monitor Usage Time after Adjustment
	The adjustment target set to the monitor.	less than the threshold, or no threshold
	The adjustment target set to the monitor.	more than the threshold
	The adjustment target not set to the monitor.	less than the threshold, or no threshold
	The adjustment target not set to the monitor.	more than the threshold
Blank	Unadjusted status.	-



Profile emulation data is displayed. For details of the profile emulation data, see “9-4. Creating Adjustment Target for Profile Emulation” (page 52).

Chapter 2 Setting Up

Set up the operating environment according to the following procedures.

2-1. System Requirements

Computer

Common

- Macintosh or Windows system that satisfies the Adobe AIR 1.5 system requirements.
- Resolution: recommended resolution of the monitor*1
- USB port: at least 2 free ports required (at least 1 free port for monitors with built-in calibration sensor)*2

*1 About the recommended resolution of the monitor, see the user's manual of the monitor.

*2 An EIZO USB cable (MD-C93) is required to connect the monitor to the computer.

Macintosh

- Operating System (OS): Mac OS X 10.7, 10.6.8, 10.5.8, 10.4.11
- Macintosh that satisfies the OS requirement (except iMac (Power PC), iBook, iBook G4)
- Memory:
  - Mac OS X 10.7: 2 GB or more
  - Mac OS X 10.6.8: 1 GB or more
  - Mac OS X 10.5.8, 10.4.11: 512 MB or more
- 16.7 million or more colors

Windows

- Operating System (OS):
  - Windows 7 Service Pack 1 (32 bit edition and 64 bit edition)
  - Windows Vista Service Pack 2 (32 bit edition and 64 bit edition)
  - Windows XP Service Pack 3 (32 bit edition)
  - Windows XP Service Pack 2 (64 bit edition)
- Memory:
  - Windows 7 (32 bit edition and 64 bit edition): 1 GB or more
  - Windows Vista (32 bit edition and 64 bit edition): 1 GB or more
  - Windows XP (32 bit edition and 64 bit edition): 512 MB or more
- Colors: 24 bit or more

Monitor

- EIZO ColorEdge series monitor (except CG18, CG19, CG21, CE210W, CE240W)

Measurement device*3*4

- ColorMunki*5
- Eye-One Display / ColorEdge CX1
- Eye-One Monitor / Pro
- i1 Display Pro*6
- OPTIX XR / DTP94 / DTP94B*7
- Spyder3 / EX1
- Built-in calibration sensor

Light booth*3*4

- JUST ColorCommunicator1
- JUST ColorCommunicator2

*3 This product does not contain measurement device or light booth.

*4 For details of the system requirements and usage of the measurement device and light booth, see the user's manual supplied with the product.

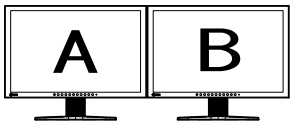
*5 ColorMunki Display cannot be used.

*6 Mac OS X 10.4 and PowerPC-based Macintosh are not supported.

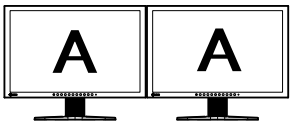
*7 Java Runtime must be installed for Mac OS X 10.7.

Attention

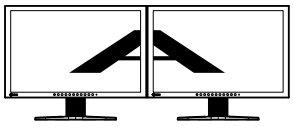
- If your OS is Windows 7 and Windows Display Calibration is enabled, please follow the steps below to disable this setting.
  1. Select "Control Panel" - "Color Management" - "Advanced".
  2. Click "Change system defaults" and select the "Advanced" tab of the displayed dialog box.
  3. Uncheck "Use Windows display calibration" check box.
- USB hub may be required if adjusting several monitors in a multiple monitor environment. Also, USB cables are required for monitor adjustment.
- When multiple monitors are connected, each monitor should display an independent screen. Displaying the same screen on each monitor or across multiple monitors prevents adjustment using the ColorNavigator software. For details of how to change the settings, see the User's Manual of the graphics board.



Independent screen on each monitor (OK)



Same screen on each monitor (NG)


A screen over the multiple monitors (NG)

- If your OS is Windows Vista, the following settings are required in a multiple monitor environment.
  1. Select "Control Panel" - "Appearance and Personalization" - "Personalization" - "Adjust screen resolution". The "Display Settings" dialog box appears.
  2. Check the "Extend the desktop onto this monitor" check box for all monitors.

2-2. Installing Software

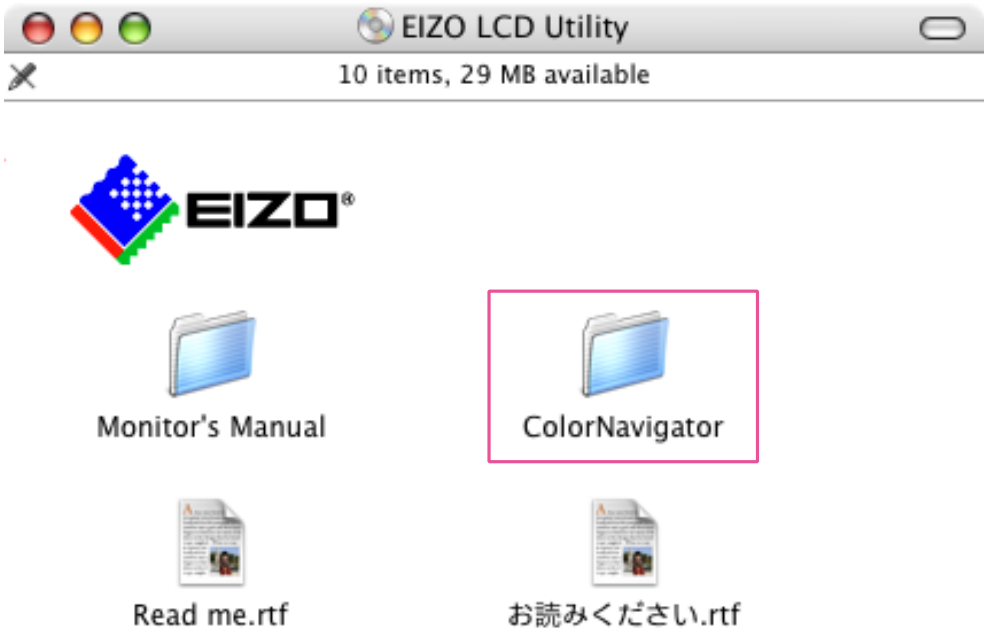
● Macintosh

To install the software from the CD-ROM

1. Insert the “EIZO LCD Utility Disk” to the CD-ROM drive

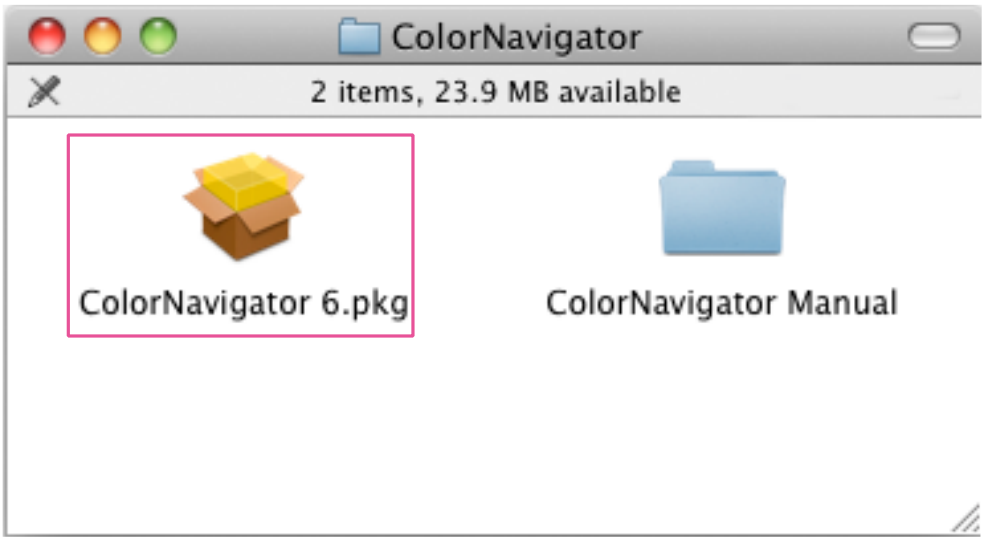
The “EIZO LCD Utility Disk” icon appears on the desktop. Double-click the icon to open the window.

2. Double-click “ColorNavigator” folder on the window



3. Double-click “ColorNavigator 6.pkg” icon on the window

The ColorNavigator installer starts up.



4. Install the software

Follow the instructions to install the software.

To download and install the software from our website

1. Double-click the downloaded file

The “ColorNavigator 6xx” icon appears on the desktop. Double-click the icon to open the window.

Note

- The “ColorNavigator” folder may open automatically depending on your system environment.

2. Double-click “ColorNavigator 6.pkg” icon on the window

The ColorNavigator installer starts up.

3. Install the software

Follow the instructions to install the software.

● Windows

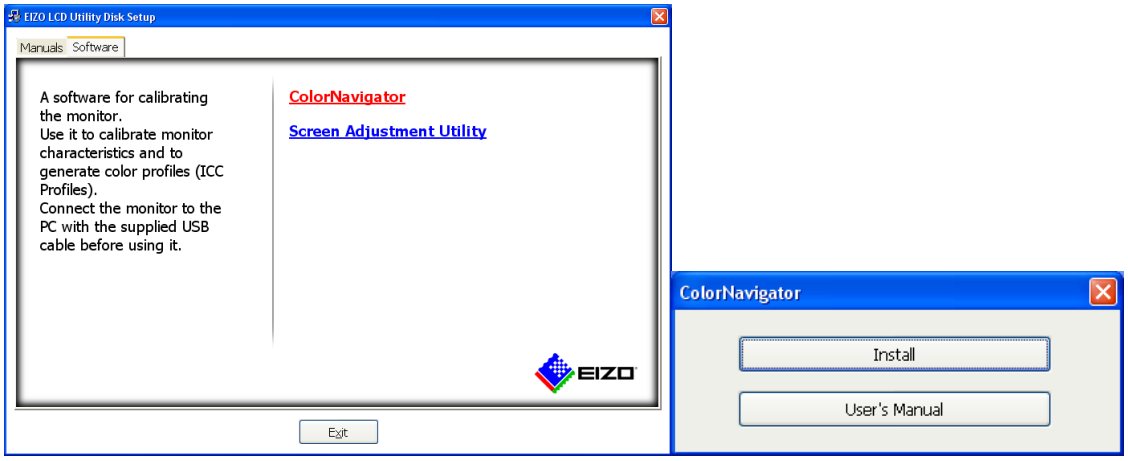
Attention

- A user account with the “Administrator” authority is required.
- Please consult your system administrator for your account.

To install the software from the CD-ROM

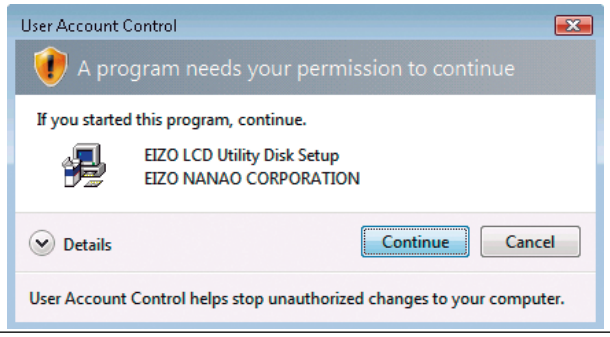
1. Insert the “EIZO LCD Utility Disk” to the CD-ROM drive

The menu opens. Click the “Software” tab.
Click “ColorNavigator” - “Install” on the start menu. The ColorNavigator installer starts up.



Note

- Double-click the “Launcher.exe” icon if the menu does not open automatically.
- If your OS is Windows Vista or Windows 7, the “User Account Control” dialog box may appear when you double-click “Launcher.exe”.
  Click “Continue” (Windows Vista) / “Yes” (Windows 7) to open the menu.


User Account Control
A program needs your permission to continue
If you started this program, continue.
EIZO LCD Utility Disk Setup
EIZO NANAO CORPORATION
Details
Continue
Cancel
User Account Control helps stop unauthorized changes to your computer.

2. Install the software

Follow the instructions to install the software.

To download and install the software from our website

1. After unzip the downloaded file, click “setup.exe”

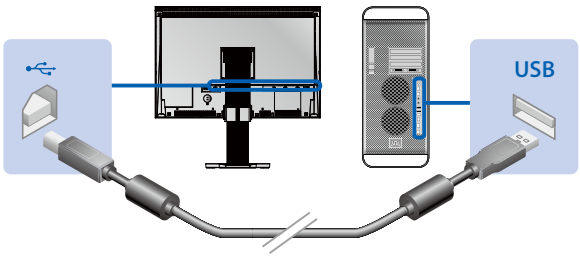
The ColorNavigator installer starts up.

2. Install the software

Follow the instructions to install the software.

2-3. Connecting Monitor with Measurement Device

1. Connect the USB upstream port of monitor and the USB downstream port of computer with the EIZO USB Cable (MD-C93)



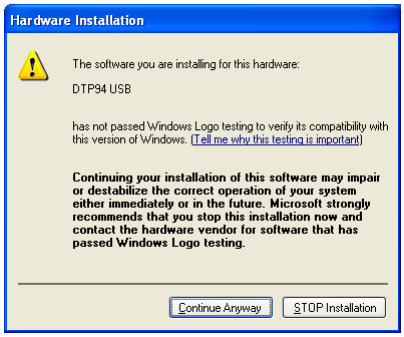
2. Connect the measurement device to the USB downstream port of the computer or the monitor

Attention

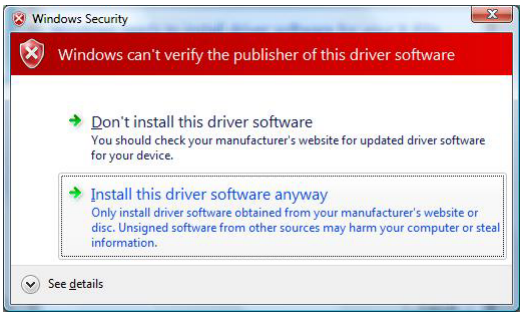
- Some measurement devices may have restrictions on the USB port to connect. For details, see the user's manual of the measurement device.
- If the measurement device is connected after starting up ColorNavigator, it may not be detected. Be sure to connect the measurement device before starting up the ColorNavigator.

Note

- If your OS is Windows, "Found New Hardware wizard" will appear when you connect the sensor. Please carry out the driver software installation in accordance with the displayed instructions. (For Windows only)
- The measurement device driver is automatically installed with ColorNavigator. It is not necessary to install the measurement device supplied with the device. (For Windows only)
- The following dialog may appear several times when you install the driver software. Click "Continue Anyway" (Windows XP) / "Install this driver software anyway" (Windows Vista) to install the driver software. Continue the installation of the driver software until this dialog disappears.


Hardware Installation
The software you are installing for this hardware:
DTP94 USB
has not passed Windows Logo testing to verify its compatibility with this version of Windows. (Tell me why this testing is important)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

(Windows XP)


Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

(Windows Vista / Windows 7)

2-4. Uninstalling Software

● Macintosh

1. Double-click the "/Library/Application Support/EIZO/ColorNavigator/ ColorNavigator 6 Uninstaller" icon.

● Windows 7 / Windows Vista

Attention

- A user account with the "Administrator" authority is required.
- Please consult your system administrator for your account.

Note

- When "ColorNavigator 6 Core" is uninstalled, "ColorNavigator 6" will be automatically uninstalled.

1. Select "Control Panel" - "Uninstall a program"

2. Select "ColorNavigator 6 Core" from the list and click "Uninstall"

● Windows XP

Attention

- A user account with the "Administrator" authority is required.
- Please consult your system administrator for your account.

Note

- When "ColorNavigator 6 Core" is uninstalled, "ColorNavigator 6" will be automatically uninstalled.

1. Select "Control Panel" and double-click "Add or Remove Programs"

2. Select "ColorNavigator 6 Core" from the list and click "Remove"

BASIC

Chapter 3 Starting Up and Quitting

3-1. Starting Up ColorNavigator

● Macintosh

1. Double-click the “ColorNavigator 6” icon in the “Application” folder

The “ColorNavigator” icon appears in the Dock and then the main window appears.

If the main window does not open, follow the steps below to open the main window.

1. Right-click the “ColorNavigator” icon in the Dock to open the menu.
2. Select “Start ColorNavigator”.

● Windows

1. Double-click the “ColorNavigator 6” shortcut icon on the desktop

The “ColorNavigator” icon appears in the notification area and then the main window appears.

If the main window does not open, follow the steps below to open the main window.

1. Right-click the “ColorNavigator” icon in the notification area to open the menu.
2. Select “Start ColorNavigator”.

Attention

- Do not disconnect USB cables of the monitor or measurement device while running ColorNavigator. Doing so may result in system freeze or software malfunction.

Note

- ColorNavigator is the resident software by default (ColorNavigator Agent function). For details of ColorNavigator Agent, see “12-3. Using ColorNavigator Agent” (page 74).
- When connecting multiple monitors that are adjustable with ColorNavigator, you should select the monitor to be adjusted. For details, see “12-1. Using ColorNavigator in Multiple Monitor Environment” (page 72).

3-2. Displaying Software Version

Display the main window, select “Help”, and then click “Version”.

Note

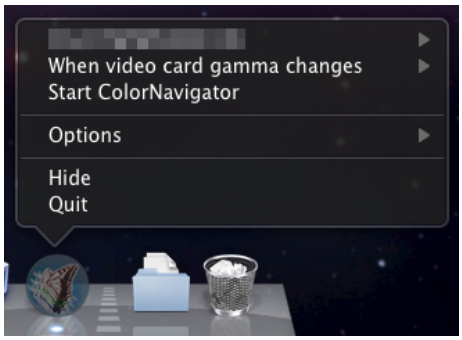
- You can check whether the latest software is shown on the website. For details, see “12-5. Checking the Latest Software” (page 78).

3-3. Quitting ColorNavigator

● Macintosh

1. Right-click the “ColorNavigator” icon in the Dock to open the menu

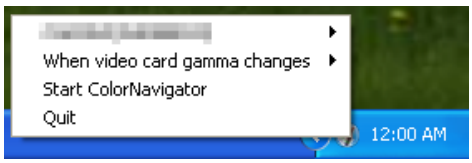
2. Select “Quit”



● Windows

1. Right-click the “ColorNavigator” icon in the notification area to open the menu

2. Select “Quit”



Note

- Do not quit ColorNavigator if you use the ColorNavigator Agent function (See “12-3. Using ColorNavigator Agent” (page 74).).

Chapter 4 Adjusting Monitor

This section describes adjustment procedures when one monitor is connected to computer. For details of the monitor adjustment in a multiple monitor environment, see "12-1. Using ColorNavigator in Multiple Monitor Environment" (page 72).

Attention

- If the monitor is CG232W, you can adjust the monitor only with the DVI or D-SUB input signal. The adjustment result of the DVI or D-SUB input signal can be applied to the SDI input signal.

4-1. Preparing Adjustment

This section describes the procedure that should be performed before monitor adjustment.

1. Turn on both the monitor and the computer 30 minutes before monitor adjustment (= warming up)

Note

- To obtain precise adjustment results, the monitor and computer must be sufficiently warmed-up.

2. Disable the power managing function of the computer and the monitor

Disable the power managing function of them so they will not be in the power save mode. Disable the screen saver so that it will not be activated during adjustment or measurement.

Attention

- Once the monitor goes into the power-save mode, it takes a while for the brightness and color conditions to re-stabilize.

3. Set the display resolution and colors

We suggest using the monitor with the recommended resolution.

Set the monitor color at 16.7 million (24 bit) or more.

Note

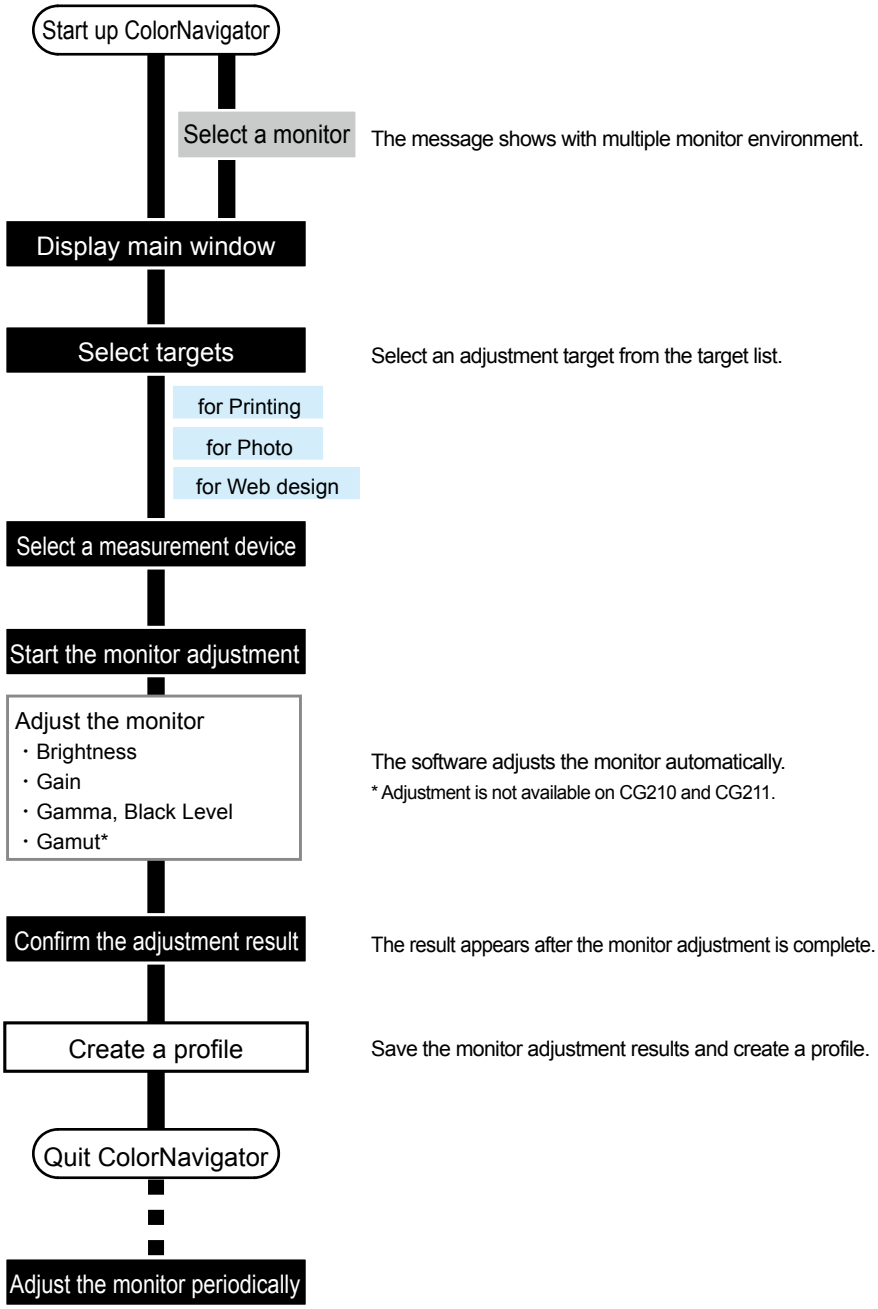
- About the recommended resolution of the monitor, see the user's manual of the monitor.

4-2. Adjusting Monitor

Select an adjustment target that was set previously, and adjust the monitor to the target. Adjust the monitor according to the following procedures.

Attention

- The suitable modes for the display image are available on the monitor (FineContrast mode/Color Mode).
- When you perform the monitor adjustment, the monitor automatically switches to CAL mode or EMU mode (i.e. Calibration mode or Emulation mode). The monitor adjustment result is only registered in CAL mode or EMU mode. (The result is not registered in other modes.) Use CAL mode or EMU mode for the monitor.
- If the monitor has two or more CAL modes, the monitor adjustment result is registered in the specified CAL mode.
- If the monitor has an EMU mode, the monitor adjustment result is registered in the EMU mode when color gamut calibration is performed, or in the CAL mode when color gamut calibration is not performed.
- If the monitor is CG232W, you can adjust the monitor only with the DVI or D-SUB input signal. The adjustment result of the DVI or D-SUB input signal can be applied to the SDI input signal.


Start up ColorNavigator
Select a monitor
The message shows with multiple monitor environment.
Display main window
Select targets
Select an adjustment target from the target list.
for Printing
for Photo
for Web design
Select a measurement device
Start the monitor adjustment
Adjust the monitor
・Brightness
・Gain
・Gamma, Black Level
・Gamut*
The software adjusts the monitor automatically.
* Adjustment is not available on CG210 and CG211.
Confirm the adjustment result
The result appears after the monitor adjustment is complete.
Create a profile
Save the monitor adjustment results and create a profile.
Quit ColorNavigator
Adjust the monitor periodically

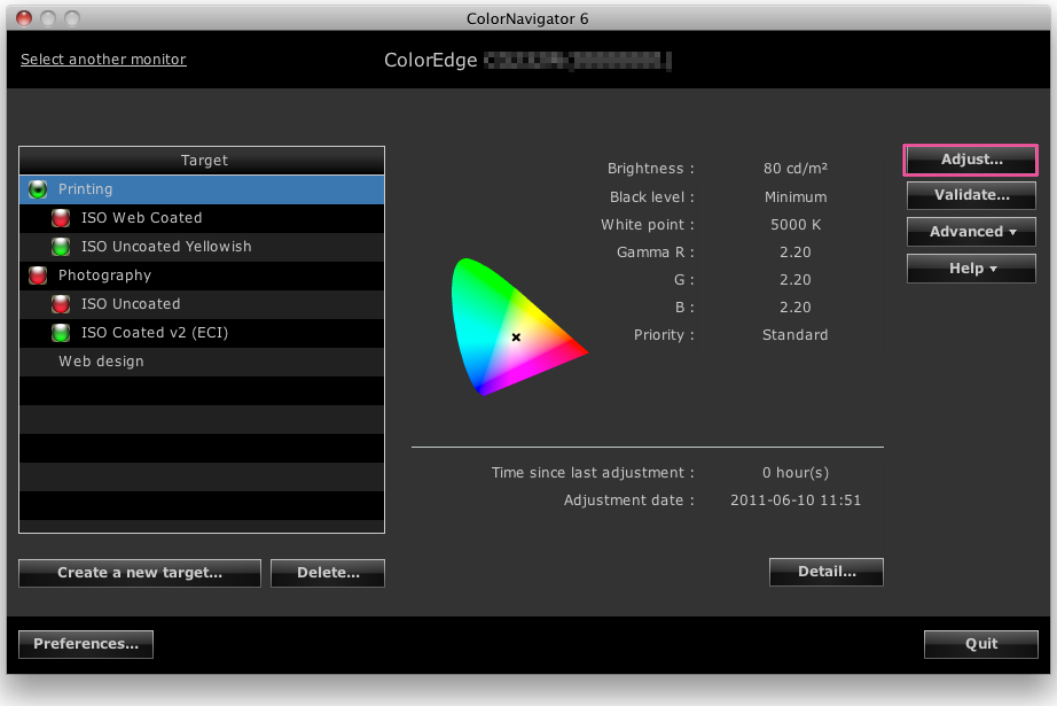
1. Prepare the adjustment according to “4-1. Preparing Adjustment” (page 21)

2. Start up ColorNavigator (see “3-1. Starting Up ColorNavigator” (page 19))

3. Select an adjustment target from the target list in the main window and click “Adjust”

Adjustment target values are as follows.

Item	Printing	Photography	Web design
Brightness	80 cd/m^2	100 cd/m^2	80 cd/m^2
White Point	5000K	5500K	6500K
Gamma	2.20	2.20	2.20
Black Level	Minimum	Minimum	Minimum
Application	Standard setting for publication printing (e.g., magazines, brochures)	Standard setting for viewing and printing photographs	Standard setting for creating Web contents



Note

- Right-click on the list and the menu appears. From the menu, you can perform tasks such as modification of the name and export of the adjustment target.
- You can create a new adjustment target that does not exist on the list. For details, see “Chapter 5 Creating Adjustment Target” (page 28).

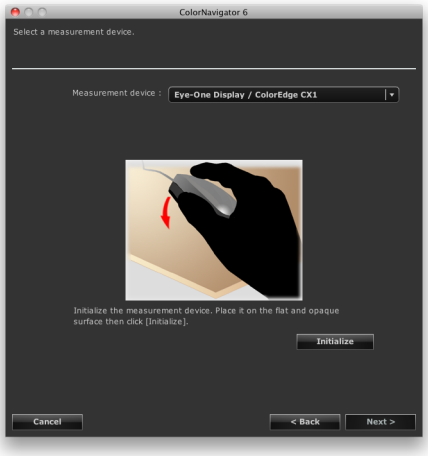
4. When analog signals are input, execute an automatic adjustment for the monitor

Follow the software instructions and click the “Auto adjust” button on the monitor.

5. Select a measurement device

Follow the software instructions and select a measurement device. Initialize the measurement device if necessary.

Initialization takes a few seconds.


ColorNavigator 6
Select a measurement device.
Measurement device :
Eye-One Display / ColorEdge CX1
Initialize the measurement device. Place it on the flat and opaque surface then click [Initialize].
Initialize
Cancel
< Back
Next >

When using ColorMunki, turn the rotary disk to initialization mode.

Attention

- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise adjustment results cannot be obtained if light is detected during the initialization process.

6. Proceed monitor adjustment

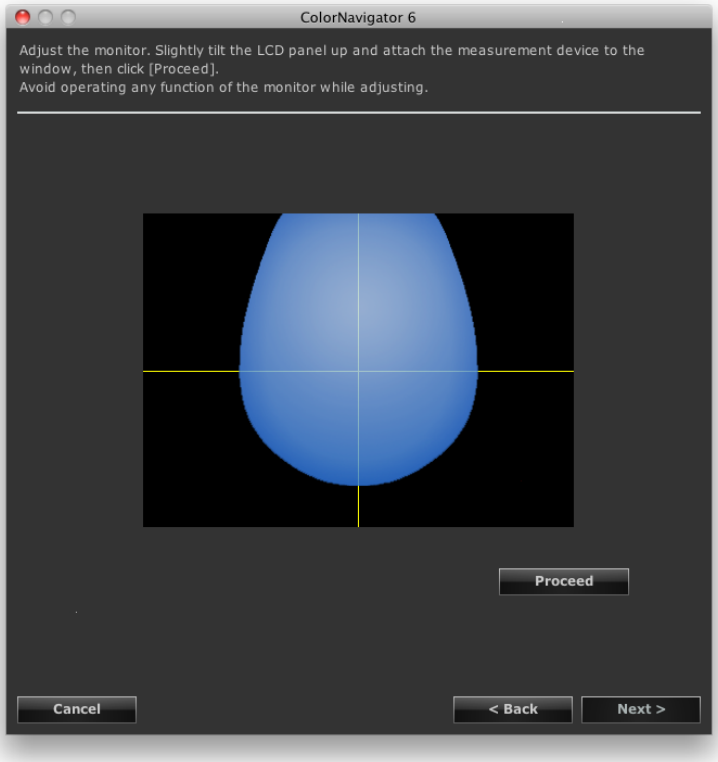
The measurement window appears on the screen.

Tilt the LCD panel up slightly and attach the measurement device to the measurement window.

(See the user's manual of the reference measurement device.)

Proceed with adjustment in accordance with the instruction on the message window.

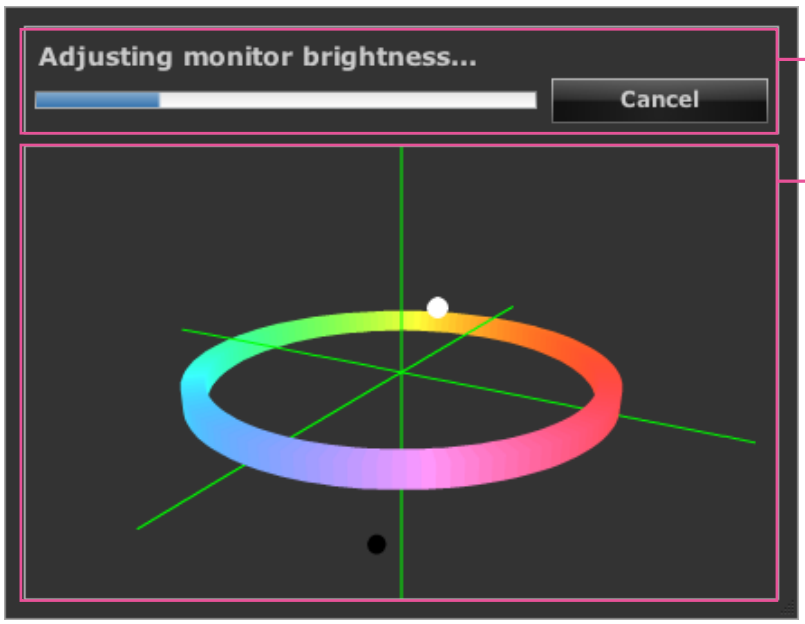
ColorNavigator sequentially shows some patterns for adjusting the monitor. Monitor adjustment takes approximately 3 minutes.


ColorNavigator 6
Adjust the monitor. Slightly tilt the LCD panel up and attach the measurement device to the window, then click [Proceed].
Avoid operating any function of the monitor while adjusting.
Proceed
Cancel
< Back
Next >

Attention

- When ColorMunki is connected to the computer, turn the rotary disk to monitor measurement mode.
- When a built-in calibration sensor is used, the measurement result may be affected by ambient light entering the sensor part. Check the following points before beginning measurement.
  - Use a curtain or the like to block any windows so that natural (outside) light does not enter the room.
  - Ensure that the lighting in the room does not change during measurement.
  - It is recommended that the monitor hood be attached.
- When you perform the monitor adjustment, the monitor automatically switches to CAL mode or EMU mode (i.e. Calibration mode or Emulation mode). The monitor adjustment result is only registered in CAL mode or EMU mode. (The result is not registered in other modes.) Use CAL mode or EMU mode for the monitor.
- If the monitor has two or more CAL modes, the monitor adjustment result is registered in the specified CAL mode.
- The figure displayed in this window depends on the type of measurement device connected to the computer.

Progress bars are displayed on the right-bottom corner while adjustment is in progress.



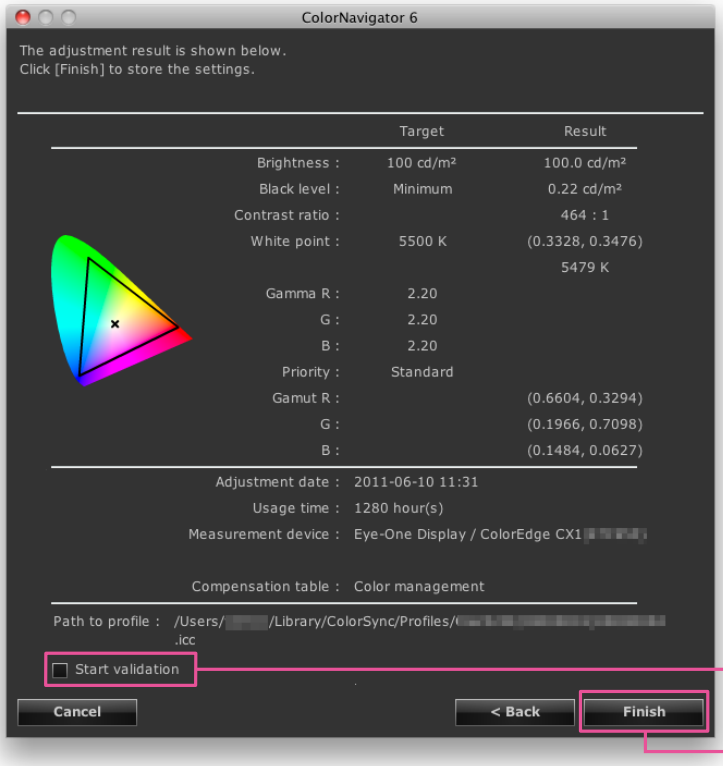
Message display area: Instructions or any software messages will be displayed while the adjustment is in progress.

Adjustment status display area: The present adjustment status is plotted in the chart. You can change the view using the mouse cursor.

When your OS is Windows and “User specified folder” has been set for the destination to save the profile, the window to select a destination to save the profile will appear after the adjustment. Select a destination to save the profile and click “Next”.

7. Confirm the result

After completing the monitor adjustment, confirm the adjustment result displayed.



For the monitor validation, see “Chapter 7 Validating Adjustment Status of Monitor” (page 42).

Saves the monitor adjustment result.

Attention

- If the black level became to minus value and the adjustment failed, an error message is displayed. Follow the indication displayed in the window and adjust the monitor from the beginning again. It’s because the measurement device could not have been attached to the monitor closely or light could have seeped through to the sensor of the measurement device during initialization.

8. Click “Finish” to quit the adjustment

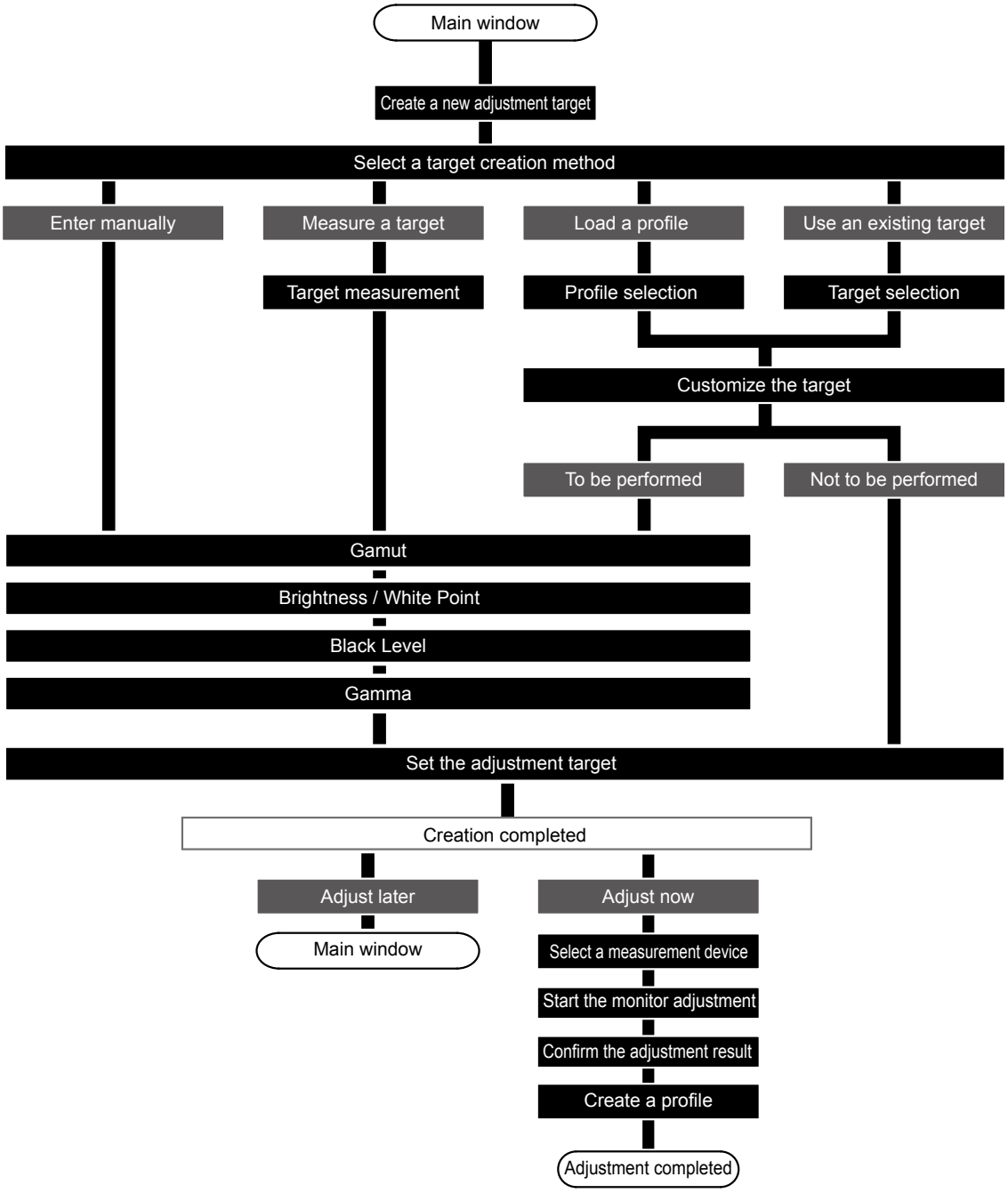
When the “Start validation” check box is checked, the monitor validation starts. For details of the monitor validation, see “Chapter 7 Validating Adjustment Status of Monitor” (page 42).

Attention

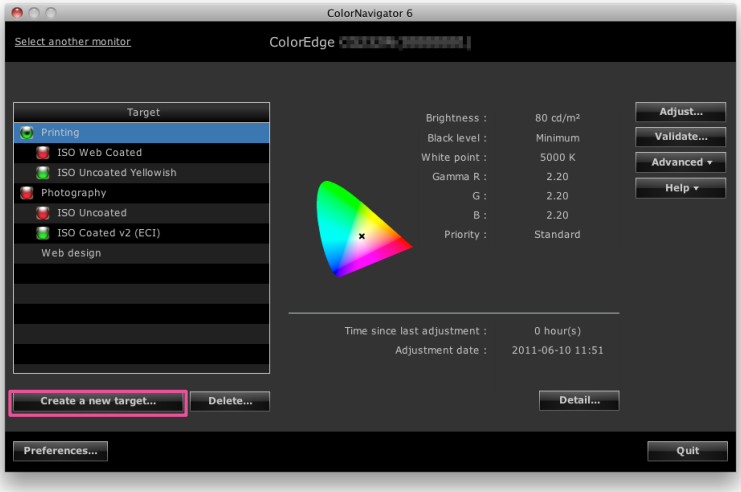
- When the monitor is CG232W, if you apply the adjustment result to the SDI input signal, click “Yes” in “Do you want to apply the adjustment result to the SDI input signal?”.
- Once the monitor is adjusted by ColorNavigator, avoid adjusting the monitor image on no purpose. If the monitor is adjusted again, the previous adjustment result will be lost.
- Do not select the color profile using an OS function after saving the profile, or color management cannot work properly.
- To execute SelfCalibration when the monitor (with built-in calibration sensor) is adjusted using measurement device other than the built-in calibration sensor, it is necessary to correlate the measurement device used with the built-in calibration sensor. For details, see “11-2. Correlate with the Reference Measurement Device” (page 65).

Chapter 5 Creating Adjustment Target

You can create the new adjustment target by specifying each value of brightness, white point and gamma. The monitor can be adjusted from the created target.
Some measurement device can set the target by measuring ambient light, paper white, etc.



1. Click “Create a new target” in the main window



The window to select how to create a new adjustment target appears.

2. Select a method to create an adjustment target in the target creation method selection window

When “Enter manually” is selected

Set all target values manually.

Go to "7. Set the gamut" (page 34).

When “Measure a target” is selected

Measure a measurement target (e.g., paper white) and the adjustment targets are set according to the result. When the target to be measured is a monitor, you can also measure the color gamut of RGB and set the result as a target “Color Gamut”.

Go to "3. Select a measurement device and a measurement target" (page 30).

When “Load a profile” is selected

The values specified in the monitor profile are set as the adjustment targets.

Go to "5. Select a profile" (page 32).

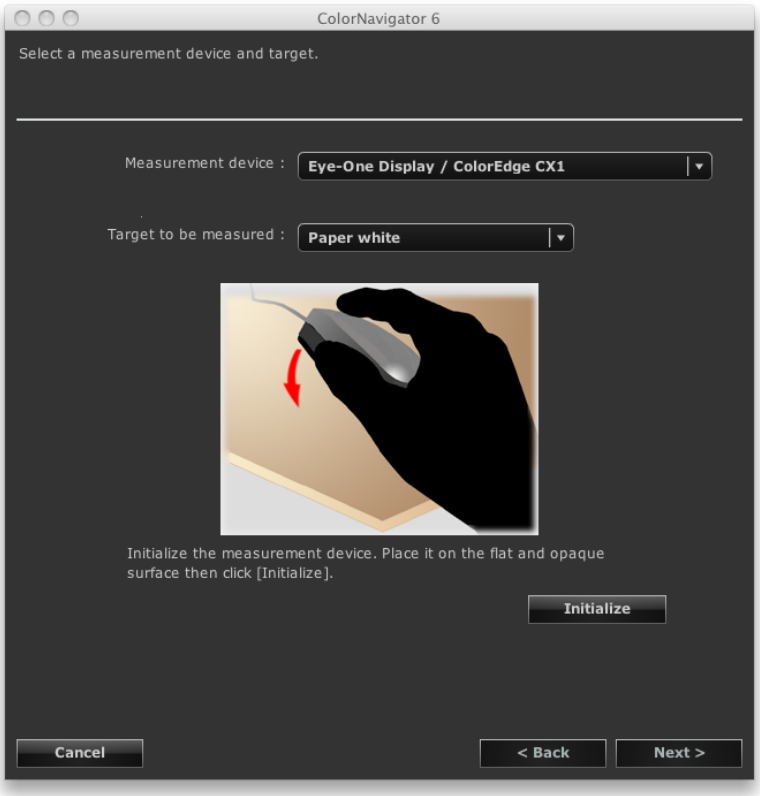
When “Use an existing target” is selected

Go to "6. Select an adjustment target to be copied" (page 33).

After selecting the target creation method, click “Next”.

3. Select a measurement device and a measurement target

Select a measurement device and target from their respective pull-down menus.


ColorNavigator 6
Select a measurement device and target.
Measurement device :
Eye-One Display / ColorEdge CX1
Target to be measured :
Paper white
Initialize the measurement device. Place it on the flat and opaque surface then click [Initialize].
Initialize
Cancel
< Back
Next >

The adjustment targets will be set as follows, based on the measurement target and result.

Measurement target	Brightness	White Point	Color Gamut
Paper White	√	√	-
Ambient Light	-	√	-
LCD monitor (RGBW)	√	√	√
LCD monitor (W)	√	√	-
CRT monitor (RGBW)	√	√	√
CRT monitor (W)	√	√	-
Light booth (Luminance)	√	√	-
Light booth (Illuminance)	-	√	-

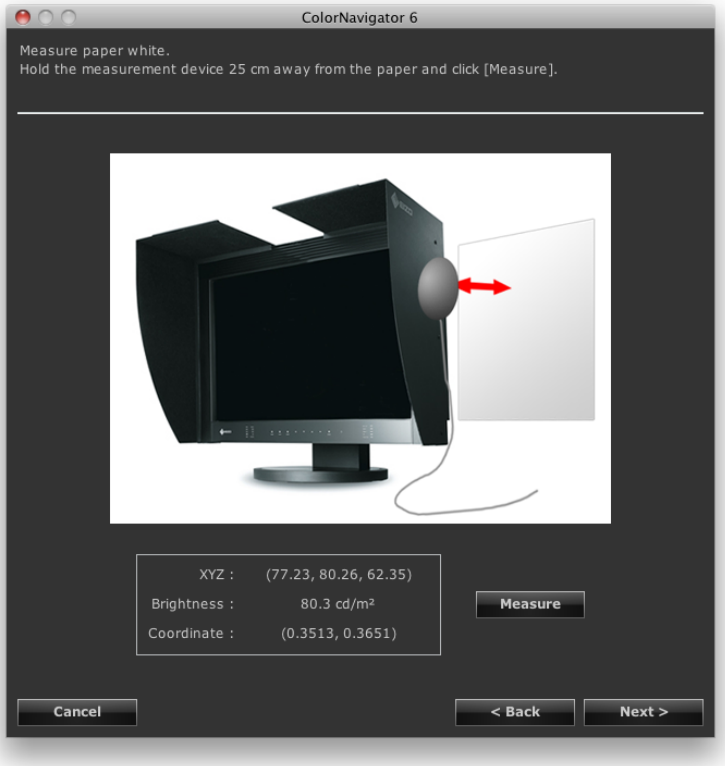
Attention

- The built-in calibration sensor cannot be selected.
- The selectable items vary depending on the type of measurement device.
- Select the measurement device to be used for the actual measurement in order to maintain the adjustment accuracy.
- If you use the built-in calibration sensor for the adjustment, use the measurement device correlated with the built-in calibration sensor. For details, see "11-2. Correlate with the Reference Measurement Device" (page 65).

Initialize the measurement device if necessary. After the initialization is completed, click “Next” to proceed to "4. Place the measurement device and perform measurement" (page 31).

4. Place the measurement device and perform measurement

Place the measurement device according to the instructions and the click “Measure” to perform measurement. After the measurement is completed, click “Next” to proceed to step "7. Set the gamut" (page 34).


ColorNavigator 6
Measure paper white.
Hold the measurement device 25 cm away from the paper and click [Measure].
XYZ : (77.23, 80.26, 62.35)
Brightness : 80.3 cd/m²
Coordinate : (0.3513, 0.3651)
Measure
Cancel
< Back
Next >

Note

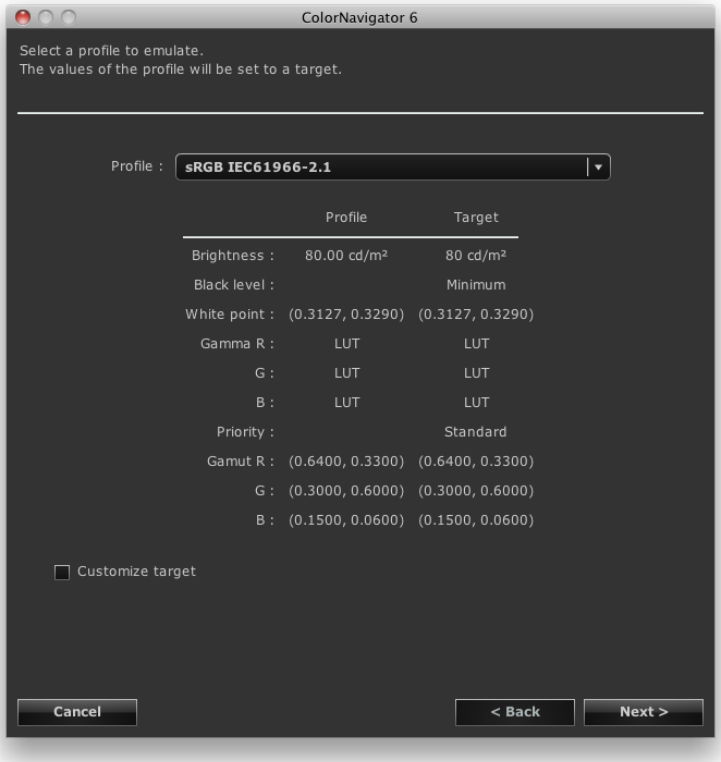
- If you select “LCD monitor (RGBW)” or “CRT monitor (RGBW)”, the measurement window is displayed until the completion of all RGBW-color measurements.

5. Select a profile

Select the target profile from the pull-down menu. After completing the selection, click “Next”.

When the “Customize target” check box is checked, go to "7. Set the gamut" (page 34).

When the “Customize target” check box is not checked, go to "11. Set an adjustment target name" (page 39).


ColorNavigator 6
Select a profile to emulate.
The values of the profile will be set to a target.
Profile :
sRGB IEC61966-2.1
Profile
Target
Brightness : 80.00 cd/m² 80 cd/m²
Black level : Minimum
White point : (0.3127, 0.3290) (0.3127, 0.3290)
Gamma R : LUT LUT
G : LUT LUT
B : LUT LUT
Priority : Standard
Gamut R : (0.6400, 0.3300) (0.6400, 0.3300)
G : (0.3000, 0.6000) (0.3000, 0.6000)
B : (0.1500, 0.0600) (0.1500, 0.0600)
Customize target
Cancel
< Back
Next >

Attention

- By default, only the profiles that registered with the system are displayed in the list.
- When emulating the color gamut of sRGB, select the following profile from the list.
  - sRGB Color Space Profile (for Windows)
  - sRGB IEC61966-2.1 (for Mac OS X 10.5 or later)
  - sRGB Profile (for Mac OS X 10.4)

6. Select an adjustment target to be copied

Select the monitor that has the adjustment target to be copied from the “Monitor name” pull-down menu.

Select an adjustment target to be copied from the “Target” pull-down menu.

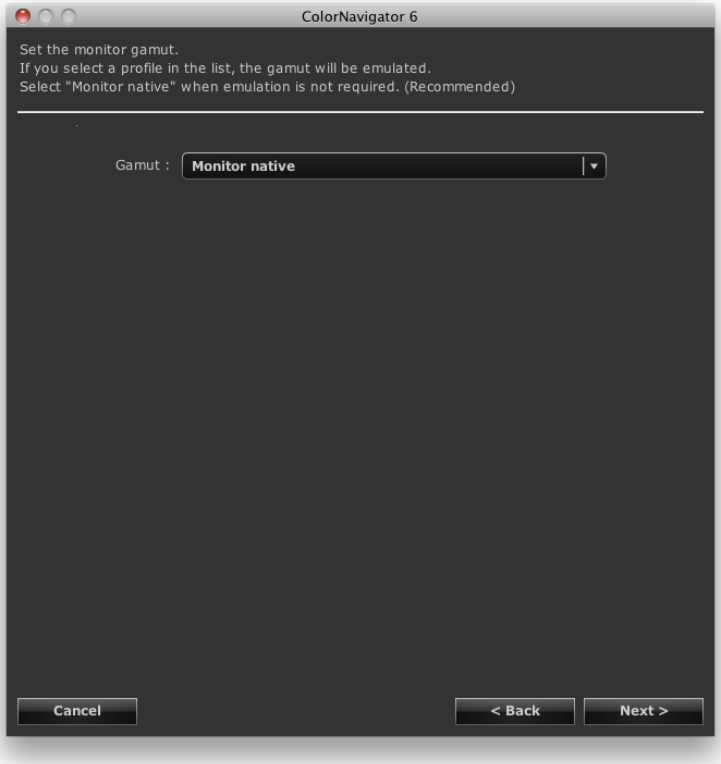
When the “Customize target” check box is checked, go to "7. Set the gamut" (page 34).

When the “Customize target” check box is not checked, go to "11. Set an adjustment target name" (page 39).

7. Set the gamut

Recommended: “Monitor native” (default setting)

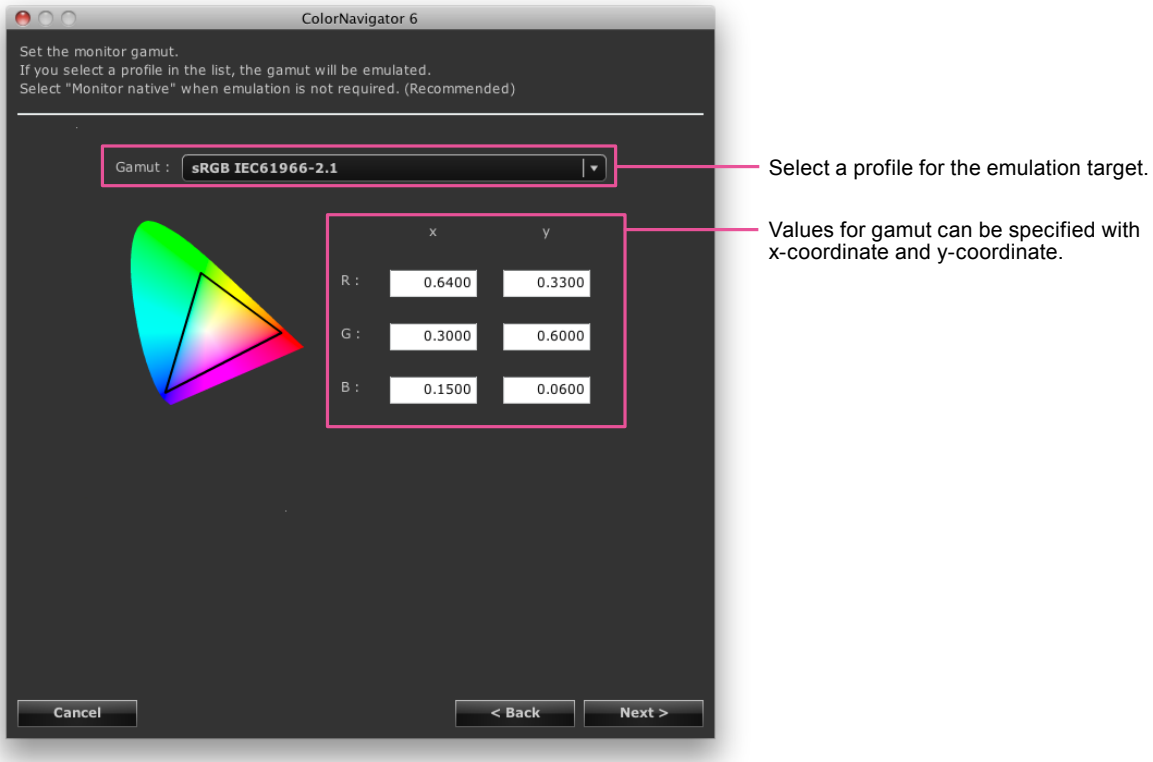
Select a profile when emulating the gamut of the monitor.


ColorNavigator 6
Set the monitor gamut.
If you select a profile in the list, the gamut will be emulated.
Select "Monitor native" when emulation is not required. (Recommended)
Gamut :
Monitor native
Cancel
< Back
Next >

Attention

- The gamut is fixed to “Monitor native” for some types of monitor.

Selecting a profile from the list displays the gamut in the selected profile.



After setting, click “Next”.

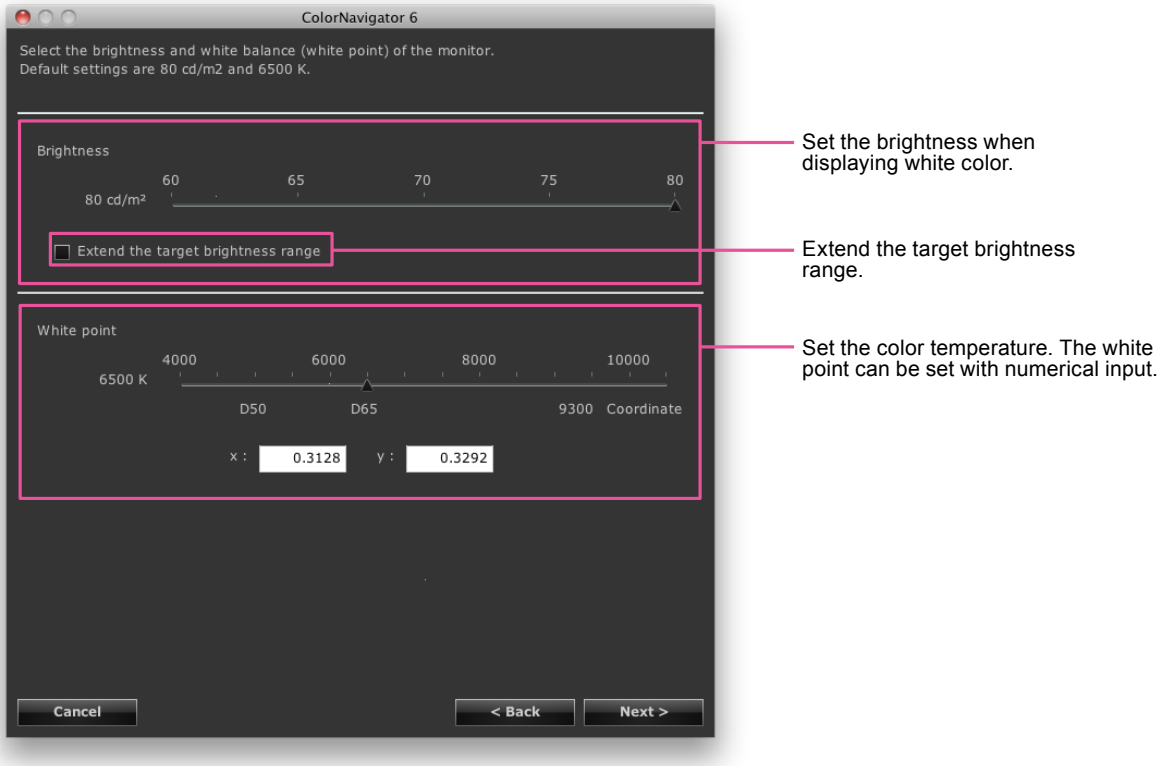
Attention

- When the target RGB gamut has been changed, the “Gamut” option changes to “Enter manually”.
- By default, only the profiles that registered with the system are displayed in the list.
- When emulating the color gamut of sRGB, select the following profile from the list.
  - sRGB Color Space Profile (for Windows)
  - sRGB IEC61966-2.1 (for Mac OS X 10.5 or later)
  - sRGB Profile (for Mac OS X 10.4)

8. Set the brightness and white point

Set the brightness (Brightness) and white balance (White Point) for the monitor.

Specify the targets for brightness and white point manually. Use the color temperature or color coordinates to specify the white point.



After setting, click “Next”.

Attention

- When you set the target white point by color coordinates, assign the target between 0.24 and 0.45 for x-coordinate and y-coordinate.

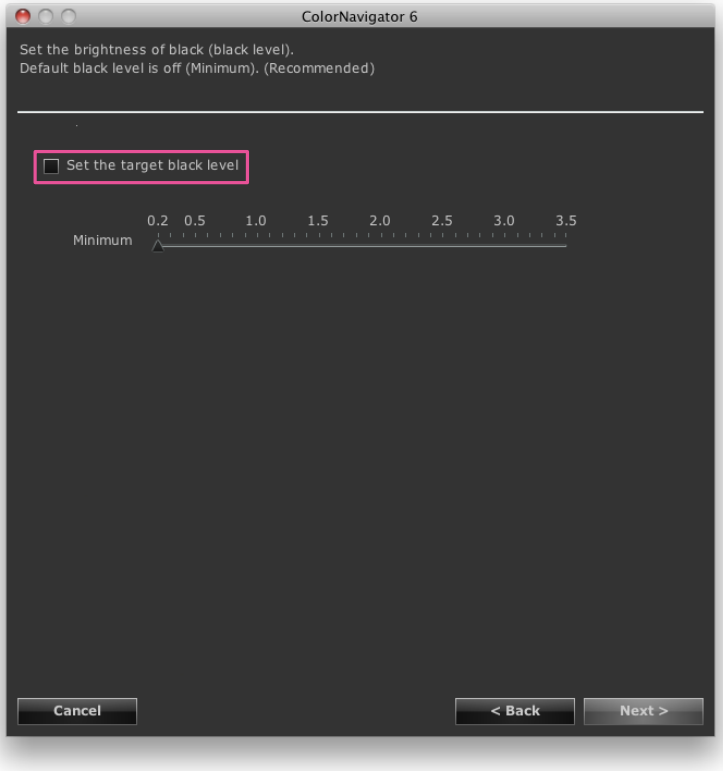
9. Set the black level

Recommended: OFF “Minimum” (default setting)

Set the brightness of black (black level).

Black level adjustment function enables you to reproduce the light black with higher bright level.

It is effective to raise the black level when the contrast appears to be too intense.


ColorNavigator 6
Set the brightness of black (black level).
Default black level is off (Minimum). (Recommended)
Set the target black level
0.2 0.5 1.0 1.5 2.0 2.5 3.0 3.5
Minimum
Cancel
< Back
Next >

After setting, click “Next”.

10. Set the gamma

Recommended: Gamma 2.20, Priority: Standard (default setting)

Set the gamma value. For “L*”, see "Chapter 14 Glossary" (page 88).

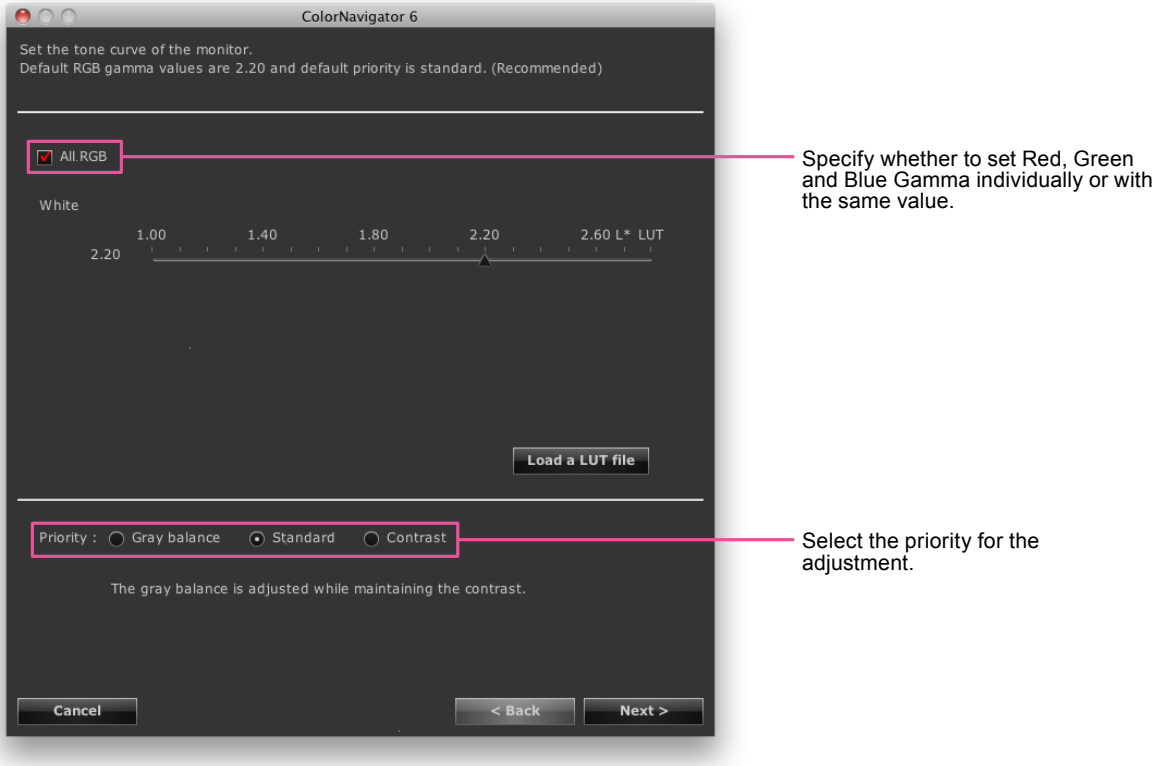
Specify whether to put the priority on Gray balance in “Priority”.

When loading the LUT file

It is necessary to prepare a CSV file in which 256 numeric values are recorded (1 value per line). For details of the file, see "12-8. File Format" (page 80).

Priority

- Gray balance: Monitor is adjusted so that the chromaticity of the gray in the middle tone equals the white point.
- Standard: The gray balance is adjusted while maintaining the contrast.
- Contrast: Monitor is adjusted so that the contrast is set to maximum.



Attention

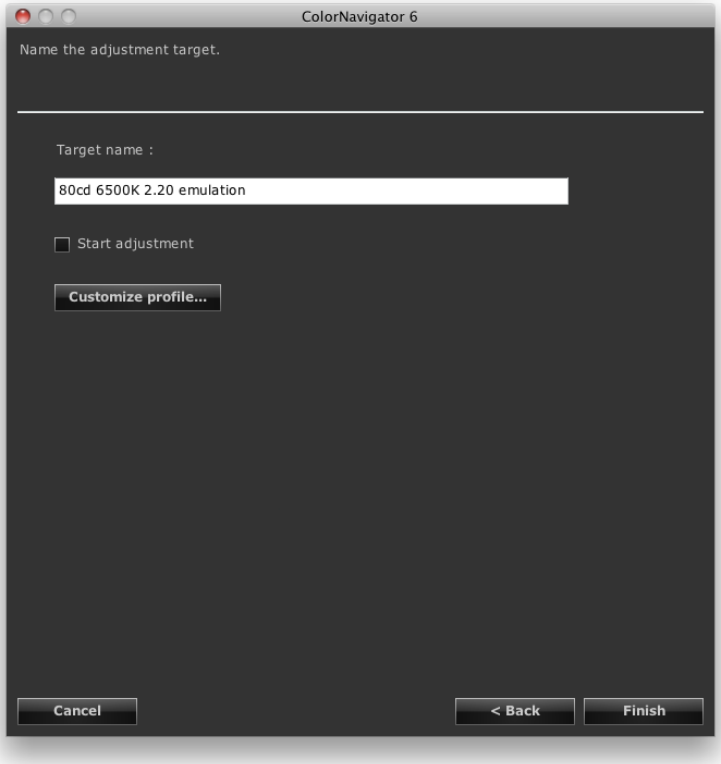
- The monitor adjustment with the priority on gray balance does the adjustment that brings all points on the grayscale closer to the target white point. Select priority on gray balance to correct RGB color balance of the grayscale in the middle tone. However, the following restrictions exist when the monitor adjustment with the priory on gray balance is done.
  - The contrast might decrease.
  - The color gamut is different from that of the monitor adjustment without priority on gray balance.
  - The gray balance cannot be adjusted with Spyder3.
  - When the “Priority” for gamma adjustment has been set to “Gray balance” or “Standard”, you cannot adjust the black level or gamma manually.

After setting, click “Next”.

11. Set an adjustment target name

Click “Customize profile”, and you can set the profile policy.

For details of the profile policy, see "9-2. Setting a Profile Policy" (page 49) in the Application Edition.



Note

- Set the target name within 128 characters.
- Target name cannot contain any of the following characters: \/:*?”‘<>|

After completing the setting, click “Finish”.

When you click “Finish” with the “Start adjustment” check box checked, the monitor adjustment starts.

When the check box is not checked, creation of a new target is finished.

Chapter 6 Periodic Adjustment

6-1. Periodic Adjustment

The monitor brightness and color gradually alter.
To compensate for changes, adjusting once a month or once every two months is recommended.
The monitor should be adjusted regardless of the periodic adjustment after any of the following cases arises.

- Changing the computer or graphics board
- Changing the connector on the monitor (ex. from SIGNAL1 to SIGNAL2) to the computer or graphics board
- Changing the monitor resolution or color
- Adjusting the monitor screen

Note

- The ColorNavigator Agent function allows you to set the warning for the usage timer. For details, see "12-3. Using ColorNavigator Agent" (page 74).

6-2. Timer

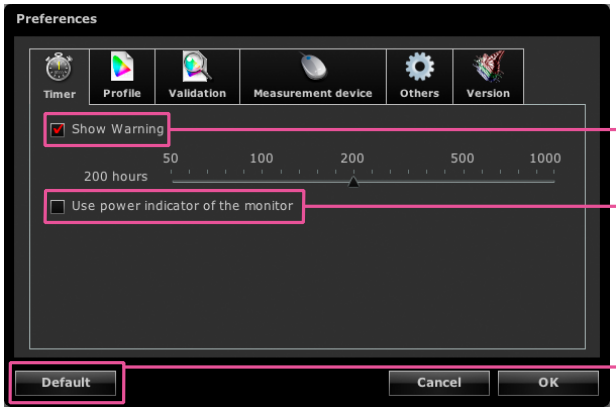
Setting a timer displays messages on the screen when the specified monitor usage time has elapsed after the monitor adjustment.

1. Open the main window.

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Timer" in the toolbar



Check the check box to activate timer.

Check the check box to enable the LED warning of the monitor.

Check the "Show Warning" check box, uncheck the "Use power indicator of the monitor" check box, and set the timer to 200 hours. Also, return the profile and other settings to the defaults.

The timer can be set between 50 and 1000 hours. Click "OK" after setting the time.

Note

- The timer operation is unaffected by SelfCalibration schedule (page 69). Calibration can be performed efficiently if the timer setting and SelfCalibration schedule are both used. For details, see "11-4. Using the Timer Setting with SelfCalibration Schedule" (page 71).

6-3. About ColorNavigator Agent

ColorNavigator Agent is a resident function of ColorNavigator. It allows you to change the adjusted target and set the warning for the usage timer. For details, see “12-3. Using ColorNavigator Agent” (page 74).

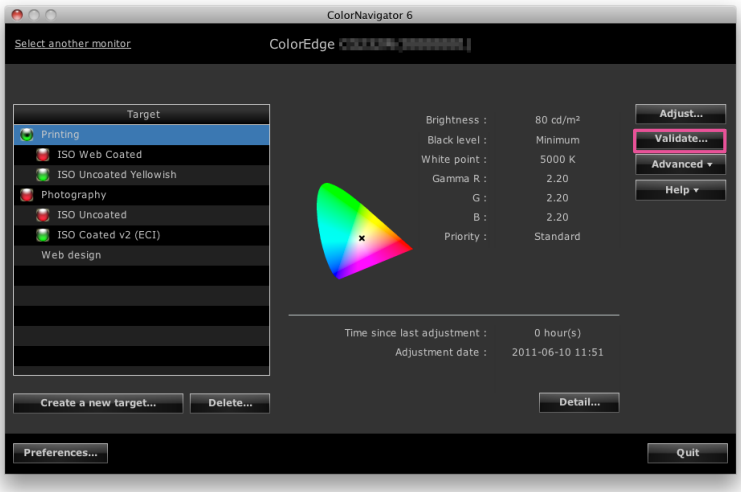
6-4. About SelfCalibration

For monitors with built-in calibration sensor, the monitor can be adjusted regularly using the SelfCalibration function. For details, see the User’s Manual of the monitor and “Chapter 11 Making Use of the Built-in Calibration Sensor” (page 65).

Chapter 7 Validating Adjustment Status of Monitor

This chapter describes how to validate the monitor adjustment status with respect to the adjustment target of the monitor.
Validating the monitor verifies the degree to which the state of the adjusted monitor matches the adjustment target. To do this, the monitor with the color patch to be used for the validation displayed is measured and then the resulting value is compared to the logical value to check the degree of matching.
The combination of the color patches (validation target) can be specified as either the RGB type or CMYK type.

1. In the main window, select an adjustment target and click “Validate”



Note

- Validation can be performed in the adjustment result window.
- When you use a CMYK type validation target, you need to prepare software to display the color patch. The software used for displaying the color patch is as follows:
  - Adobe Photoshop CS or later
  - Adobe Acrobat 7.0 (Windows only, Professional or greater is required)
  - Adobe Acrobat 8.0 or later (Professional or greater is required)

Attention

- When using the built-in calibration sensor to perform CMYK validation, depending on the system environment or software, the tool bar, menu bar, Dock, or task bar may be detected by the sensor and result in incorrect CMYK validation. Display the color patch in full screen before performing CMYK validation. To display in full screen, see the user’s manual of the software used to display the color patch.

2. Select the target (validation target) to be used from the pull-down menu

When you select a CMYK type validation target, the pull-down menu to select the software to display the color patch appears. Select the appropriate software.

After completing the selection, click “Next”.

3. Select a measurement device

Select a measurement device from the pull-down menu.

Initialize the measurement device if necessary.

After completing the selection, click “Next”.

When you select a CMYK type validation target, the message to set the software to display the color patch appears.

Make the software setting in accordance with the message instructions.

4. Proceed monitor validation

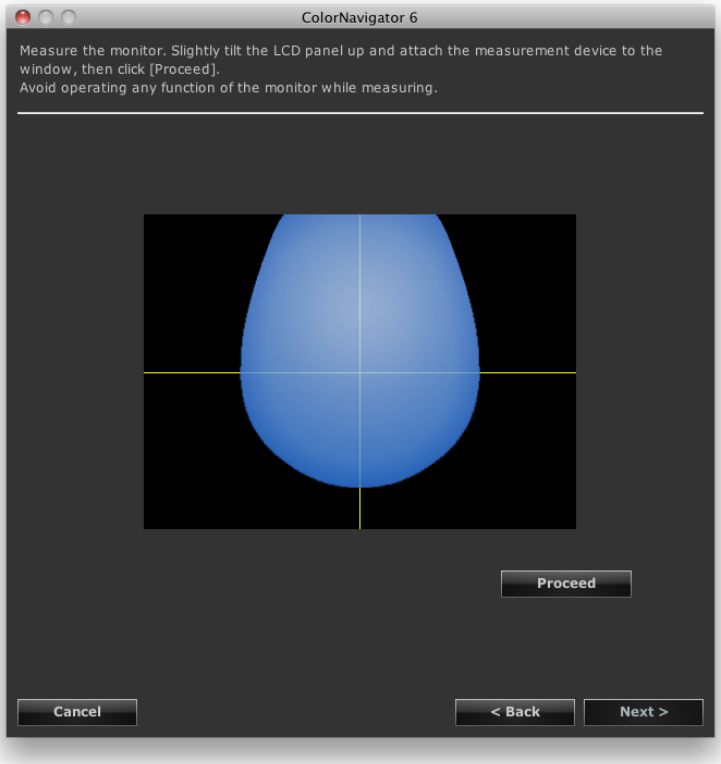
The measurement window appears on the screen.

Tilt the LCD panel up slightly and attach the measurement device to the measurement window.

(See the user’s manual of the reference measurement device.)

Follow the window instructions to validate the monitor.

A measurement pattern appears and the validation is performed automatically. Validation time varies depending on the number of color patches.


ColorNavigator 6
Measure the monitor. Slightly tilt the LCD panel up and attach the measurement device to the window, then click [Proceed].
Avoid operating any function of the monitor while measuring.
Proceed
Cancel
< Back
Next >

Attention

- When ColorMunki is connected to the computer, turn the rotary disk to monitor measurement mode.
- When a built-in calibration sensor is used, the measurement result may be affected by ambient light entering the sensor part. Check the following points before beginning measurement.
  - Use a curtain or the like to block any windows so that natural (outside) light does not enter the room.
  - Ensure that the lighting in the room does not change during measurement.
  - It is recommended that the monitor hood be attached.
- The figure displayed in this window depends on the type of measurement device connected to the computer.

When the monitor validation has completed, the completion window appears.

APPLICATION

Chapter 8 Setting Monitor Validation

Separately created validation target can be used by reading into ColorNavigator.

8-1. Importing the Validation Target

Separately created validation target can be used for monitor validation by reading into ColorNavigator.

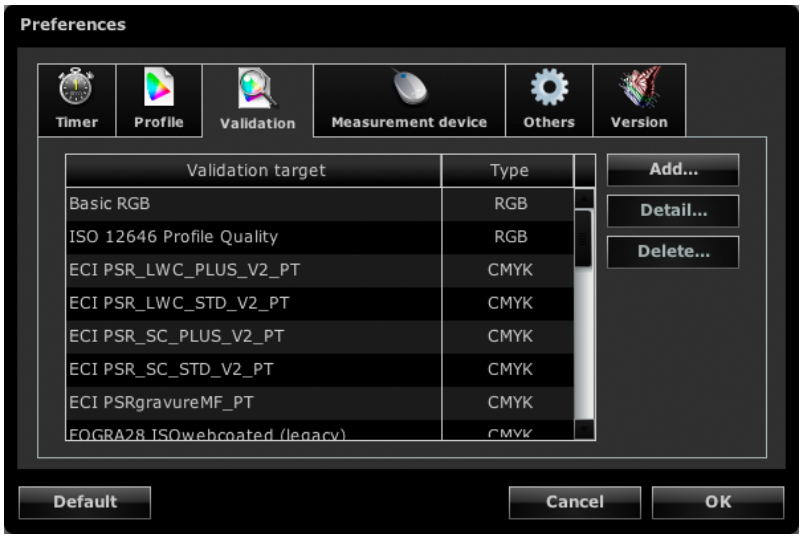
How to Import

1. Open the main window

2. Click “Preferences”

The “Preferences” dialog box appears.

3. Click “Validation” in the toolbar



Note

- The following color patches are recorded by default.

Validation target	Type
Simple RGB	RGB
ISO 12646 Profile Quality	RGB
FOGRA28 ISOwebcoated (legacy)	CMYK
FOGRA29 ISOuncoated (legacy)	CMYK
FOGRA30 ISOuncoatedyellowish	CMYK
FOGRA39 ISOcoated_v2_300_eci	CMYK
FOGRA39 ISOcoated_v2_eci	CMYK
FOGRA40 SC_paper_eci	CMYK
FOGRA41 PSO_MFC_Paper_eci	CMYK
FOGRA42 PSO_SNP_Paper_eci	CMYK
FOGRA43 PSO_Coated_300_NPscreen_ISO12647_eci	CMYK
FOGRA43 PSO_Coated_NPscreen_ISO12647_eci	CMYK
FOGRA44 PSO_Uncoated_NPscreen_ISO12647_eci	CMYK
FOGRA45 PSO_LWC_Improved_eci	CMYK
FOGRA46 PSO_LWC_Standard_eci	CMYK
FOGRA47 PSO_Uncoated_ISO12647_eci	CMYK
ECI PSR_LWC_PLUS_V2_PT	CMYK
ECI PSR_LWC_STD_V2_PT	CMYK
ECI PSR_LWC_PLUS_V2_PT	CMYK
ECI PSR_LWC_STD_V2_PT	CMYK
ECI PSRgravureMF_PT	CMYK
IDEAlliance GRACoL2006_Coated1v2	CMYK
IDEAlliance SWOP2006_Coated3v2	CMYK
IDEAlliance SWOP2006_Coated5v2	CMYK
IFRA26 ISOnewspaper26v4	CMYK

4. Click “Add”

For details of the color patch formats that can be imported, see “12-8. File Format” (page 80).

5. Select a file to be added and click “OK”

The name of the validation target file that has been imported is displayed in the validation target list. To check whether the file is imported correctly, click “Detail” and check the contents of the validation target.

6. Click “OK” to close the “Preferences” dialog box

8-2. Deleting Validation Target

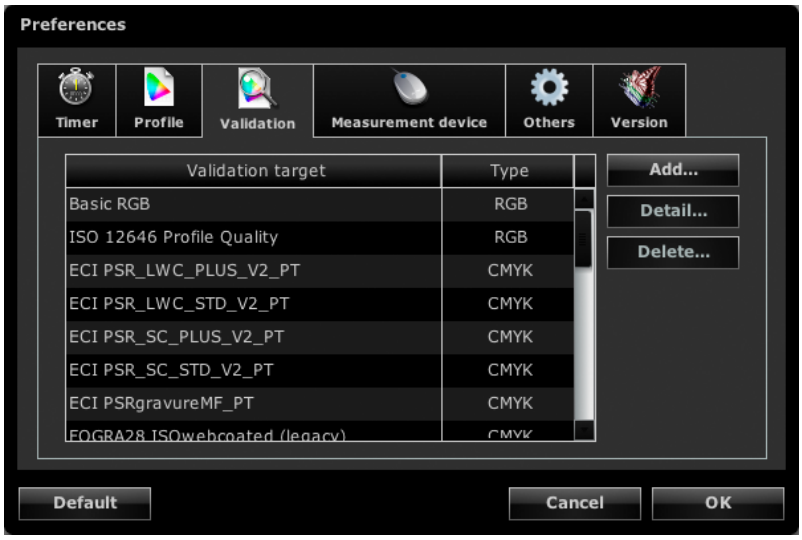
Delete a validation target as follows.

1. Open the main window

2. Click “Preferences”

The “Preferences” dialog box appears.

3. Click “Validation” in the toolbar



4. Select a validation target to be deleted and click “Delete”

The selected validation target is deleted.

Attention

- You cannot delete a validation target prepared using ColorNavigator.
- To restore the deleted validation target to the list, import it again.

5. Click “OK” to close the “Preferences” dialog box

Chapter 9 Customizing Adjustment Target

9-1. Exporting and Importing the Adjustment Target

Adjustment target can be exported and used for other system.

Attention

- One adjustment target can be exported or imported at a time.

Note

- The exported and imported data can be used on any OS.
- It is also possible to import an adjustment target exported from a previous version of ColorNavigator.

How to Export

1. Open the main window

2. Select the adjustment target to be exported from the target list

3. Select “Export target” from “Advanced”

Note

- The same operation can be performed by right-clicking on the target list to open the menu and selecting “Export”.

The file save dialog box appears.

4. Set the file name and click “Save”

How to Import

1. Open the main window

2. Select “Import target” from “Advanced”

The file selection dialog box appears.

3. Select a file and click “Open”

The file is imported and the adjustment target is shown in the target list.

9-2. Setting a Profile Policy

Once you have set a profile policy, you can customize the timing to create a monitor profile and the contents to be recorded in the profile.

How to Set

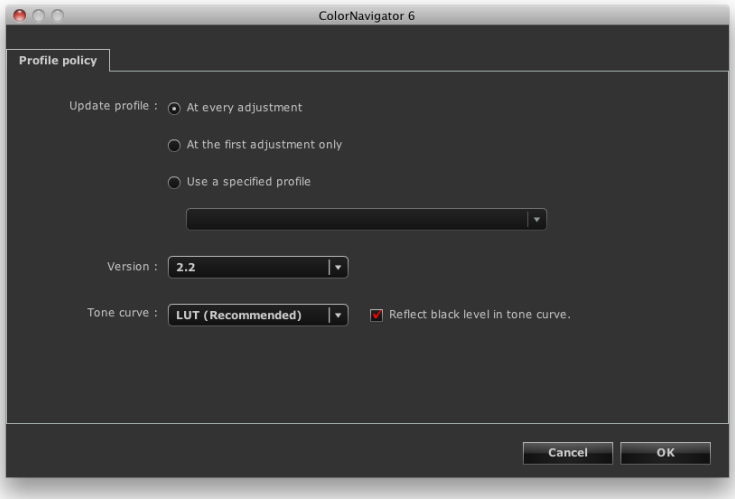
1. Open the window to create the adjustment target name

This window appears after the adjustment target has been created in the adjustment target creation process or after the manual adjustment target has been created in the manual adjustment (page 53) process.

2. Click “Customize profile”

The window to edit the profile policy appears.

3. Set the timing to create a profile and the contents to be recorded in the profile



Update profile

- At every adjustment
  A profile is updated each time the monitor is adjusted using the created adjustment target.
- At the first adjustment only
  A profile is created when the monitor is adjusted for the first time. The profile is not updated for the next and subsequent adjustments.
- Use a specified profile
  Specifies the existing monitor profile in the system. After the monitor adjustment, the specified profile is linked to the monitor.

Version

Allows you to select the profile version. Select “2.2” normally.

Tone curve

- Recording method of the tone curve
  Select “LUT (Recommended)” normally.
- Reflect black level in tone curve
  When this check box is checked, the black level value is reflected to the tone curve for the profile.

9-3. Setting Destination Folder for Profile Saving

Destination folder for a profile can be set. Set the method in Preferences.

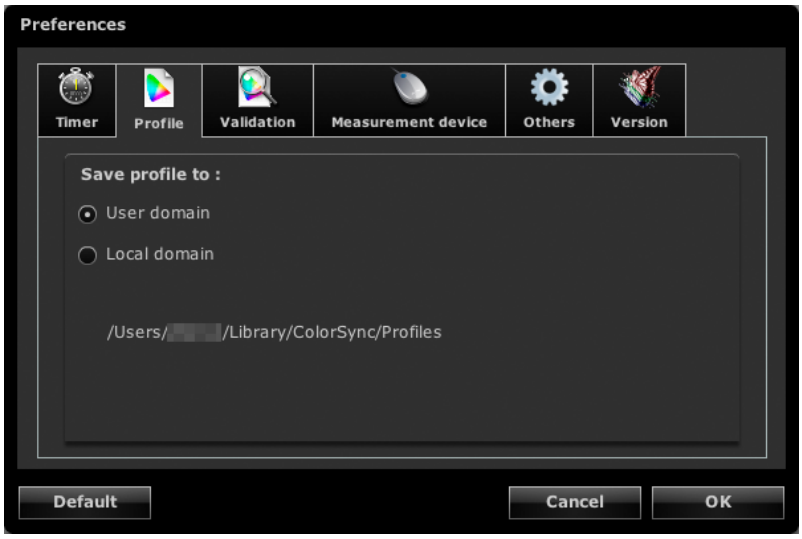
How to Set

1. Open the main window

2. Click “Preferences”

The “Preferences” dialog box appears.

3. Click “Profile” in the toolbar



The window in which the destination folder for a profile is set appears. The setting method differs depending on the OS.

Macintosh

Specify a folder with the attribute to save a profile.

- User domain
  User’s personal folder
- Local domain
  Usable folders for all accounts which registered in PC. Administrator authority is required.

Windows

Select a folder to save a profile (destination folder).

- System profile folder (Recommended)
  Usable folders for all accounts which registered in PC. Administrator authority is required
- User specified folder
  Folder specified by user.

Attention

- When you select “User specified folder”
  - The profile needs to be set to the system manually. For details of the setting method, see “Reference: How to Set Profile in Windows” (page 51).
  - If you have no access right to the folder, an error message will appear.

Reference: How to Set Profile in Windows

Windows 7

1. Click the Start button and select “Control Panel”.
2. Click “Appearance and Personalization”.
3. Click “Display”.
4. Click “Adjust resolution” and then click “Advanced settings” of “Change the appearance of your displays”.
5. Select “Color Management” tab and click “Color Management”.
6. Check the “Use my settings for this device” check box and click “Add”.
7. Click “Browse” and specify the folder where the Color Profile is saved (the CD-ROM drive or the folder where the downloaded file is saved) in the “Look in:” section.
8. Select a suitable Color Profile from the list then click “Add”.
9. Select a suitable profile from the list in the “Profiles associated with this device:” and click “Set as Default Profile”.
10. Click “Close” to close a menu.

Windows Vista

1. Click the Start button and select “Control Panel”.
2. Click “Hardware and Sound” and click “Color Management”.
3. Select “Display” from the “Device” pull-down menu.
4. Check the “Use my settings for this device” check box and click “Add”.
5. Click “Browse” and specify the folder where the Color Profile is saved in the “Look in:” section.
6. Select a suitable Color Profile from the list then click “Add”.
7. Select a suitable profile from the list in the “Profiles associated with this device:” and click “Set as Default Profile”.
8. Click “Close” to close a menu.

Windows XP

1. Click the Start button and select “Control Panel”.
2. Click “Appearance and Themes” and click “Display” icon.
3. Select “Settings” tab and click “Advanced”.
4. Select “Color Management” tab and click “Add”.
5. Specify the folder where the ICC profile is saved in the “Look in:” section.
6. Select a suitable Color Profile from the list then click “Add”.
7. Select a Color Profile from the list in the “Color Profiles currently associated with this device:” and click “Set As Default”.
8. Click “Apply” and click “OK” to close a menu.

9-4. Creating Adjustment Target for Profile Emulation

Profile for devices, such as printers, can be emulated using the profile emulation function.

Attention

- This function is not available in CG210, CG211, CG220, CG221, CG241W, CG301W, or CG303W.

How to Create

Attention

- If the base monitor profile is updated according to the monitor adjustment, the following steps must be performed again.

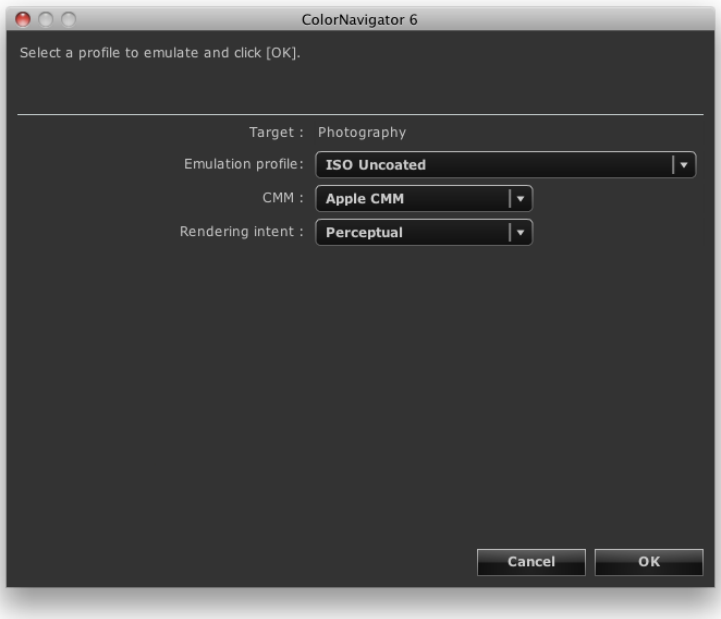
1. Select an adjustment target to be emulated from the adjustment targets in the main window

Attention

- You can only select an adjustment target that has been adjusted.

2. Select “Profile emulation” from “Advanced”

The window to create the profile emulation data appears.



3. Make emulation settings

Select the emulation profile, CMM (color management module), and rendering intent from their respective pull-down menus.

4. Click “OK”

The emulation data creation starts.

Note

- When the profile emulation result is applied, the window display may be unstable. However, this is not a problem. Please wait until the application of the adjustment result is completed.

5. Set the emulation data name

9-5. Manual Adjustment

After completing adjustment, the white point, brightness, gamma, the hue and saturation of those 6 colors (red, green, blue, cyan, magenta, and yellow) can be adjusted manually.

Attention

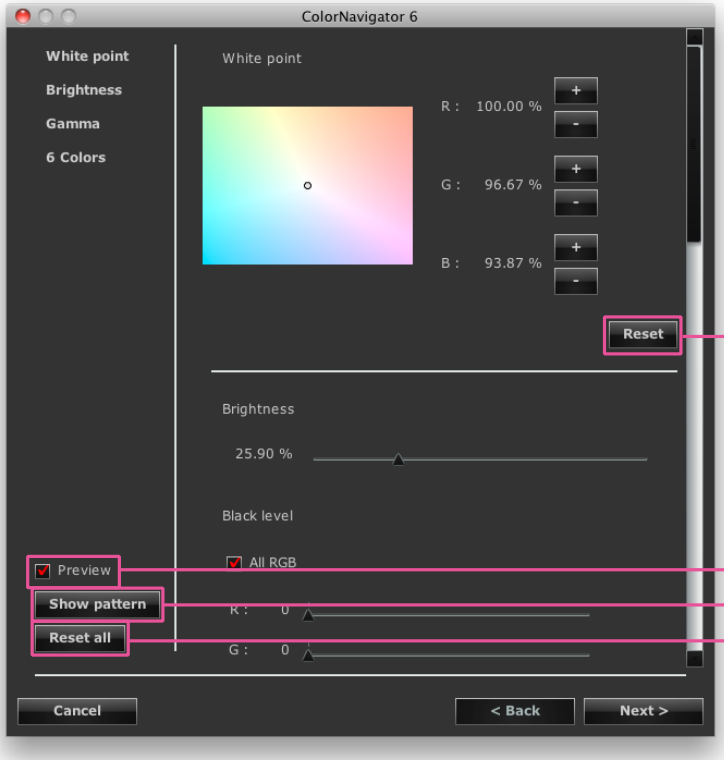
- Note the following when adjusting the 6 Colors.
  - Adjusting the 6 Colors makes difference in the color between images and print less noticeable and does not correct the colors. The color management settings of each device or software program may not be appropriate when the color of the monitor image is noticeably different from that of the print.
  - The results of any adjustment to the 6 Colors will be saved in the ColorNavigator as adjustment data. The result of the 6 colors adjustment does not reflect the profile made after adjustment.
- When the “Priority” for gamma adjustment has been set to “Gray balance” or “Standard”, you cannot adjust the black level or gamma manually.

How to Adjust

1. Open the main window

2. Select “Adjust manually” from “Advanced”

The manual adjustment window appears.



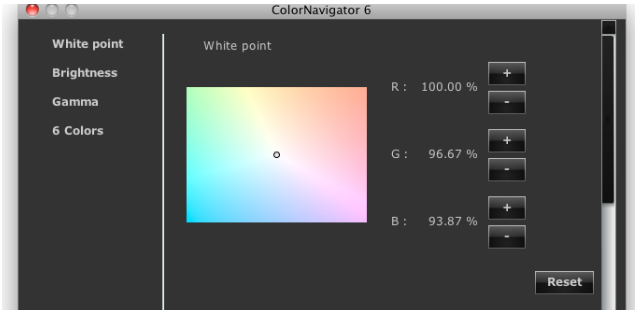
Restores the setting for each adjustment item (white point, brightness, black level, gamma, and 6 colors) to that before the manual adjustment.

If the box is unchecked, the status before it was adjusted manually is displayed.

Shows the pattern display screen.

Restores all settings to those before the manual adjustment.

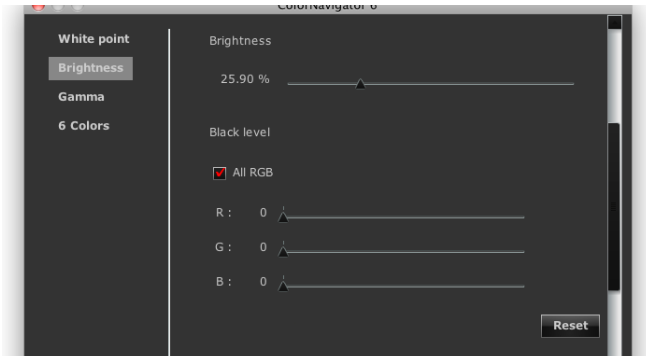
White Point



Adjust the gain of red (R)/green (G)/blue (B) to adjust the white balance.

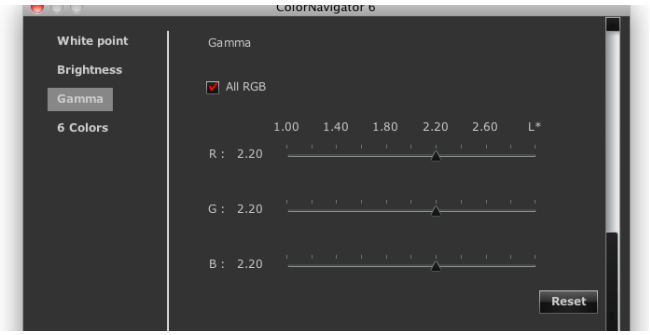
+/- button:
Click the button to either increase or decrease each gain.
Coordinate specification:
Specify the coordinate by dragging the “O” mark that indicates the current white point, and each gain will be calculated.

Brightness



Correct the brightness and black level.
This item is not displayed for some monitor models.

Gamma



Set the monitor gamma. For the adjustment value “L*”, see “Chapter 14 Glossary” (page 88).

6 Colors

Hue slide bar:
Adjust the hue of red (R)/green (G)/blue (B)/cyan (C)/magenta (M)/yellow (Y). The hue changes as the slide bar moves.

Saturation slide bar:
Adjust the saturation of red (R)/green (G)/blue (B)/cyan (C)/magenta (M)/yellow (Y). As the slide bar moves to the left, the saturation goes low. As the slide bar moves to the right, the saturation goes high.

Color	Slide bar to the left	Slide bar to the right
R	to magenta	to yellow
G	to yellow	to cyan
B	to cyan	to magenta
C	to green	to blue
M	to blue	to red
Y	to red	to green

Attention

- When the “Priority” for gamma adjustment has been set to “Gray balance” or “Standard”, you cannot adjust the black level or gamma manually.

Note

- The manual adjustment window can move and be adjusted with the image.
- The values displayed on the left of the functions, such as white point, brightness, black level, 6 colors adjustment are reference values.

3. Select a measurement device

Initialize the measurement device if necessary.

4. Measure the monitor

After the manual adjustment, click “OK” in the manual adjustment window. The manual adjustment window will close and the measurement window will appear.

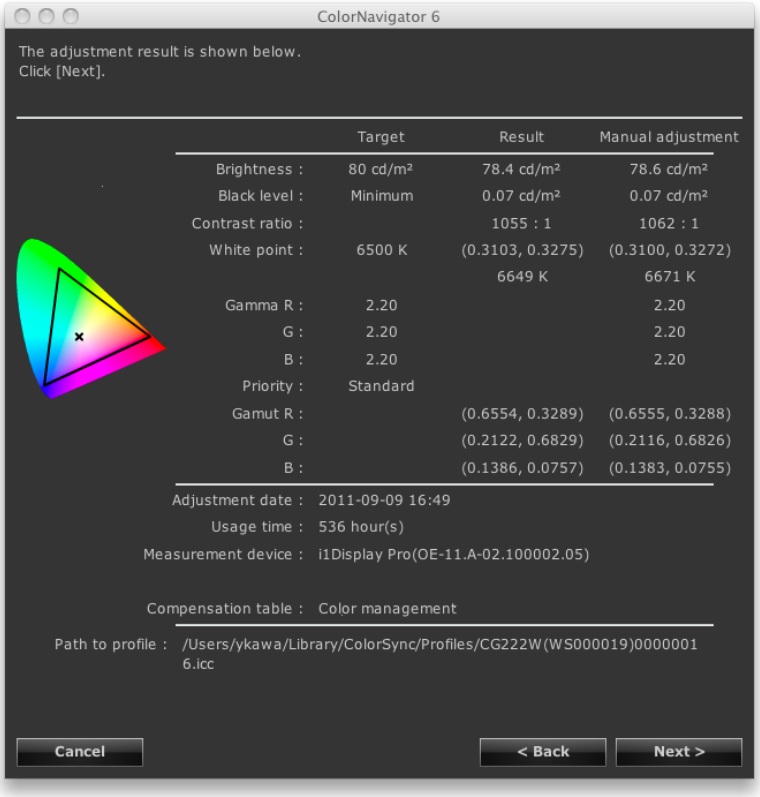
Follow the window instructions to measure the monitor.

Attention

- When a built-in calibration sensor is used, the measurement result may be affected by ambient light entering the sensor part. Check the following points before beginning measurement.
  - Use a curtain or the like to block any windows so that natural (outside) light does not enter the room.
  - Ensure that the lighting in the room does not change during measurement.
  - It is recommended that the monitor hood be attached.

5. Confirm the measurement result

When the measurement has completed, the measurement result is displayed.


ColorNavigator 6
The adjustment result is shown below.
Click [Next].
Target
Result
Manual adjustment
Brightness : 80 cd/m² 78.4 cd/m² 78.6 cd/m²
Black level : Minimum 0.07 cd/m² 0.07 cd/m²
Contrast ratio : 1055 : 1 1062 : 1
White point : 6500 K (0.3103, 0.3275) (0.3100, 0.3272)
6649 K 6671 K
Gamma R : 2.20 2.20
G : 2.20 2.20
B : 2.20 2.20
Priority : Standard
Gamut R : (0.6554, 0.3289) (0.6555, 0.3288)
G : (0.2122, 0.6829) (0.2116, 0.6826)
B : (0.1386, 0.0757) (0.1383, 0.0755)
Adjustment date : 2011-09-09 16:49
Usage time : 536 hour(s)
Measurement device : i1Display Pro(OE-11.A-02.100002.05)
Compensation table : Color management
Path to profile : /Users/ykawa/Library/ColorSync/Profiles/CG222W(WS000019)00000016.icc
Cancel
< Back
Next >

Confirm the measurement result and click “Next”.

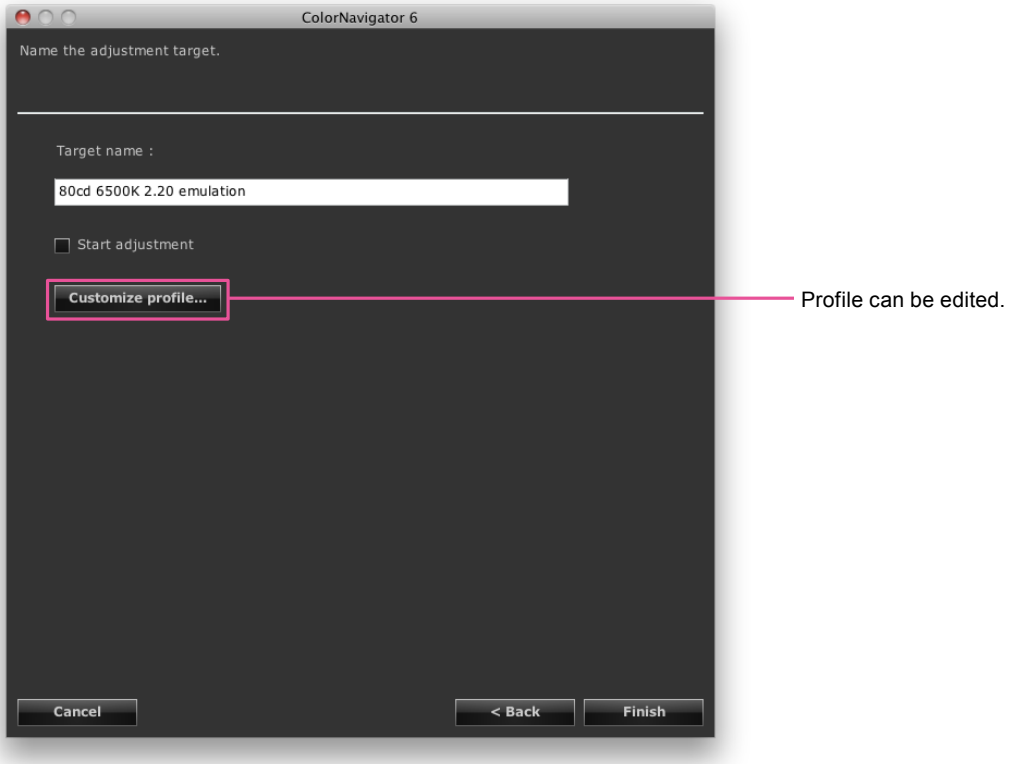
Attention

- If the black level became to minus value and the adjustment failed, an error message is displayed. Follow the indication displayed in the window and measure the monitor from the beginning again. It’s because the measurement device could not have been attached to the monitor closely or light could have seeped through to the sensor of the measurement device during initialization.

Note

- When your OS is Windows and “User specified folder” has been set for the destination to save the profile, the window to select a destination to save the profile will appear after the adjustment. Select a destination to save the profile and click “Next”.

6. Set an adjustment target name



After completing the setting, click “Finish”.

9-6. Adjusting Light Booth

The brightness or illuminance of the light booth can be adjusted.

Attention

- Before adjustment, a light booth need to be connected to the computer with USB cable.
- For details of the adjustable light booth, see “2-1. System Requirements” (page 10).
- For details of use, see the user’s manual of the light booth.
- The following measurement devices can be adjusted in term of illuminance.
  - X-Rite Eye-One Pro
  - X-Rite Eye-One Display2
  - ColorMunki
- The built-in calibration sensor cannot be used to adjust the light booth.

Note

- The adjustment target can be created from the adjustment result.
  - When adjusting the monitor in term of brightness, brightness and white point are set to the target.
  - When adjusting the monitor in term of illuminance, brightness is set to the target.

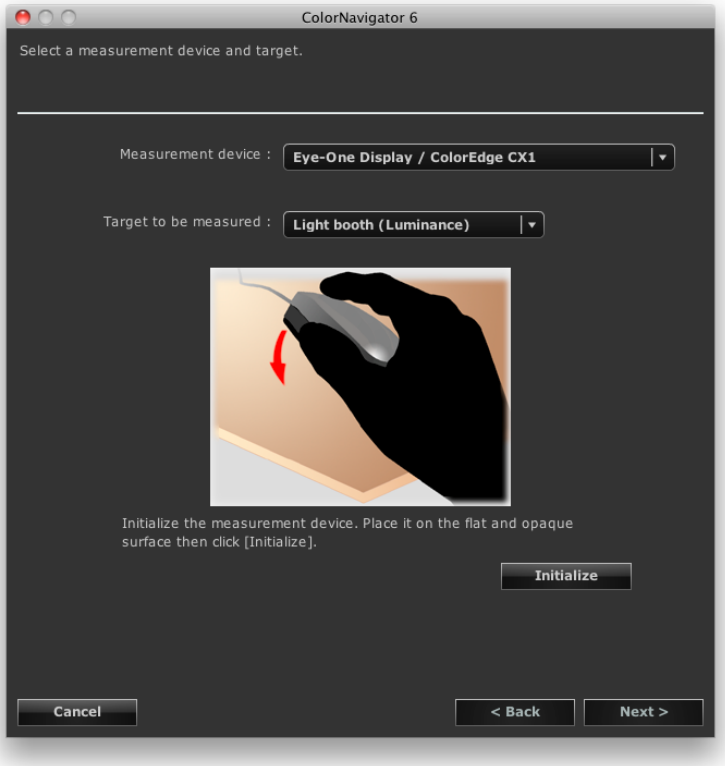
How to Adjust

1. Open the main window

2. Select “Light booth adjustment” from “Advanced”

The measurement device selection window appears.

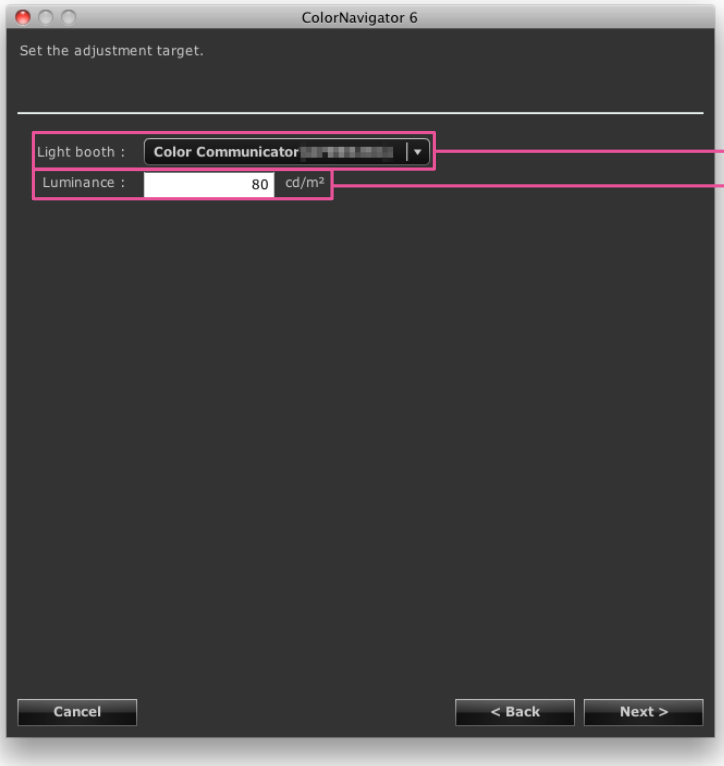
3. Select a measurement device


ColorNavigator 6
Select a measurement device and target.
Measurement device :
Eye-One Display / ColorEdge CX1
Target to be measured :
Light booth (Luminance)
Initialize the measurement device. Place it on the flat and opaque surface then click [Initialize].
Initialize
Cancel
< Back
Next >

1. Select a measurement device from the “Measurement device” pull-down menu.
2. Select a measurement target from the “Target to be measured:” pull-down menu.
   When adjusting the monitor in term of brightness (cd/m^2), select “Light booth (Luminance)”.
   When adjusting the monitor in term of illuminance (lx), select “Light booth (Illuminance)”.
3. Initialize the measurement device if necessary.
   When using ColorMunki, turn the rotary disk to initialization mode.
   Initialization takes a few seconds.
   When the initialization has completed, the light booth adjustment dialog box appears.

4. Select the light booth to be adjusted from the list

5. Set the targets



Attention

- Changing the standard for adjustment requires the initialization of the measurement device. Follow the instructions to initialize the measurement device.
- When adjusting the monitor in term of illuminance, attach the ambient light head to the measurement device. About attaching, see the user's manual of the measurement device. When using ColorMunki, turn the rotary disk to ambient light measurement mode.

6. Put a measurement device

Put the measurement device according to the illustration displayed in the dialog box.

ColorNavigator 6
Hold the measurement device 25 cm (9.8 inch) away from the paper in the light booth and click [Proceed].
Proceed
Cancel
< Back
Next >

7. Click “Proceed”

The adjustment starts.

8. Confirm the result

When the measurement has completed, the above window appears.

When you check the “Create a monitor target” check box and then click “Finish”, the gamut setting window of the adjustment target creation window, which is opened using the “Create a new target” button, appears, allowing you to create a new adjustment target. Create a new adjustment target with reference to “7. Set the gamut” (page 34).

When you uncheck the “Create a monitor target” check box and then click “Finish”, the main window appears.

Chapter 10 Customizing Monitor Adjustment

10-1. Setting Measurement Device

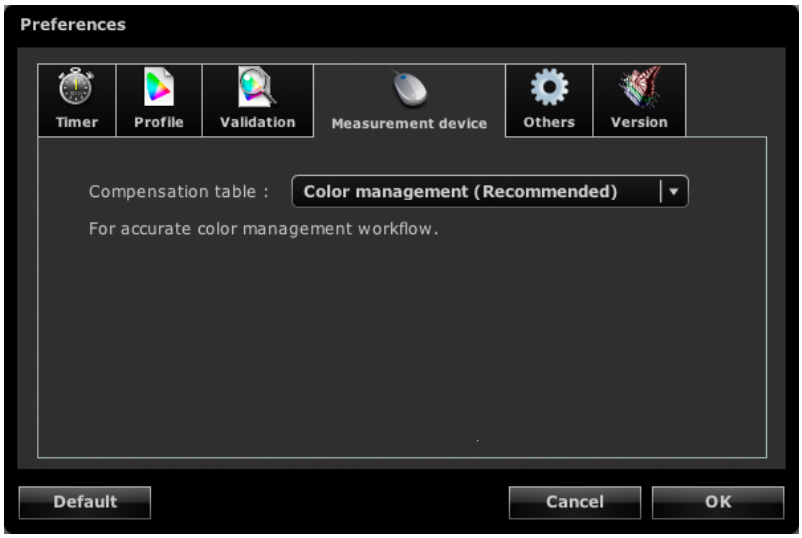
The compensation method for the measurement device can be set. Set the method in Preferences.

1. Open the main window

2. Click “Preferences”

The “Preferences” dialog box appears.

3. Click “Measurement Device” in the toolbar



4. Select a method to compensate the measurement value from the “Compensation table” pull-down menu

The following shows the options.

Color management (Recommended)	For accurate color management workflow. Suitable for single monitor using.
Multiple monitor matching	For color matching among various monitors.
No compensation	For other company’s monitor validation tool. The sensor measurement value is used as it is. Wide gamut monitors may not be measured correctly depending on your sensor.

Attention

- Be careful of the following points when using the built-in calibration sensor.
  - To select the method for compensating the measurement value, correlation with the reference measurement device is necessary. For more information, see “11-2. Correlate with the Reference Measurement Device” (page 65).
  - When correlation with the measurement device is not performed, the compensation method is fixed at “Color management (Recommended)” despite the results of the compensation method selected.

10-2. Updating the Gamut

Attention

- This function is not available in CG210, CG211, CG220, CG221, CG222W, CG241W, CG301W, or CG303W.

Note

- In any mode other than CAL mode/EMU mode, the white point is adjusted so that it is as close as possible to the specified value.
- In modes that adjust the color gamut, such as an sRGB, the gamut values are adjusted so that they are close to each specified value.
- To reset the monitor gamut to the default setting, select “Monitor gamut” - “Reset to default” from “Advanced” in the main window.

Put the monitor to temporarily unadjusted status and measure the color, and then set the measurement result to the monitor.
With this function, you can adjust the each display for FineContrast Mode or Color Mode except for CAL and EMU modes.

1. Open the main window

2. Select “Monitor gamut” - “Measure and update” from “Advanced”

3. When analog signals are input, execute an automatic adjustment for the monitor

4. Select a measurement device

Initialize the reference measurement device according to the instructions.

When using ColorMunki, turn the rotary disk to initialization mode.

Initialization takes a few seconds.

When the initialization has completed, the measurement window appears.

5. Measure the monitor

Follow the window instructions to measure the monitor. The measurement is performed automatically.

When the measurement has completed, a message appears.

REFERENCE

Chapter 11 Making Use of the Built-in Calibration Sensor

The monitor adjustment can be performed using the built-in calibration sensor. Also, SelfCalibration schedule of the monitor can be set from ColorNavigator.

Attention

- This function is available for monitors with built-in calibration sensor.

11-1. About Built-in Calibration Sensor

The following ColorNavigator functions uses the built-in calibration sensor.

- Monitor adjustment
- Monitor validation
- Correlation of the built-in calibration sensor (See page 65)

The SelfCalibration schedule can be set using ColorNavigator (See page 69).

Attention

- The following functions are not supported by the built-in calibration sensor.
  - Paper white measurement and ambient light measurement
  - Adjusting Light Booth
  - Adjusting and measuring another monitor
- The target gamma value for SelfCalibration is set to “Fixed” and cannot be adjusted.

Note

- When ColorNavigator is started, it automatically adjusts the time and date of the monitors with the built-in calibration sensor to the time and date of the PC.
- When the monitor with built-in calibration sensor is adjusted using ColorNavigator, the adjustment target of SelfCalibration for the adjusted CAL mode is set automatically.

11-2. Correlate with the Reference Measurement Device

Correlation of the measurement results between the reference measurement device and the built-in calibration sensor can be performed.

Note

- Correlation can be performed per each type of measurement device.

Attention

- When the USB of the monitor comes loose during software operation, turn off the main power of the monitor and then turn the power back on.
- “Correlation Utility”, a correlation tool provided with the previous version, is now integrated within ColorNavigator. It is not possible to use Correlation Utility with this version of ColorNavigator.

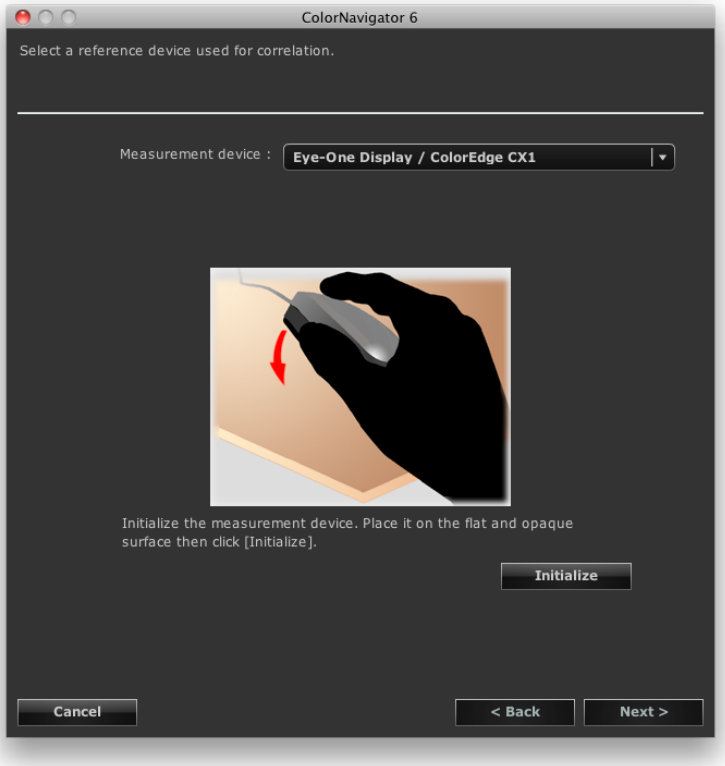
How to Correlate

1. Open the main window

2. Select “Sensor correlation” from “Advanced”

The measurement device selection window appears.

3. Select a measurement device


ColorNavigator 6
Select a reference device used for correlation.
Measurement device :
Eye-One Display / ColorEdge CX1
Initialize the measurement device. Place it on the flat and opaque surface then click [Initialize].
Initialize
Cancel
< Back
Next >

Select a reference measurement device from the list. Initialize the measurement device if necessary. After selecting the target creation method, click “Next”.

Attention

- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise adjustment results cannot be obtained if light is detected during the initialization process.

4. Proceed correlation

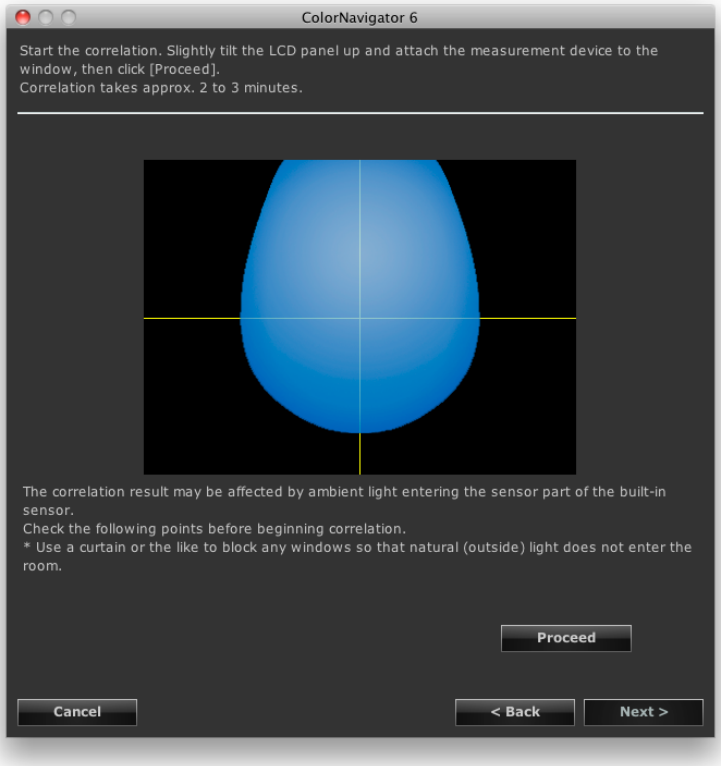
The measurement window appears on the screen.

Tilt the LCD panel up slightly and attach the reference measurement device to the measurement window.

(See the user's manual of the reference measurement device.)

Proceed with correlation in accordance with the instruction on the message window.

ColorNavigator sequentially shows some patterns for measuring the monitor and performs correlation automatically. Correlation takes 2 to 3 minutes.

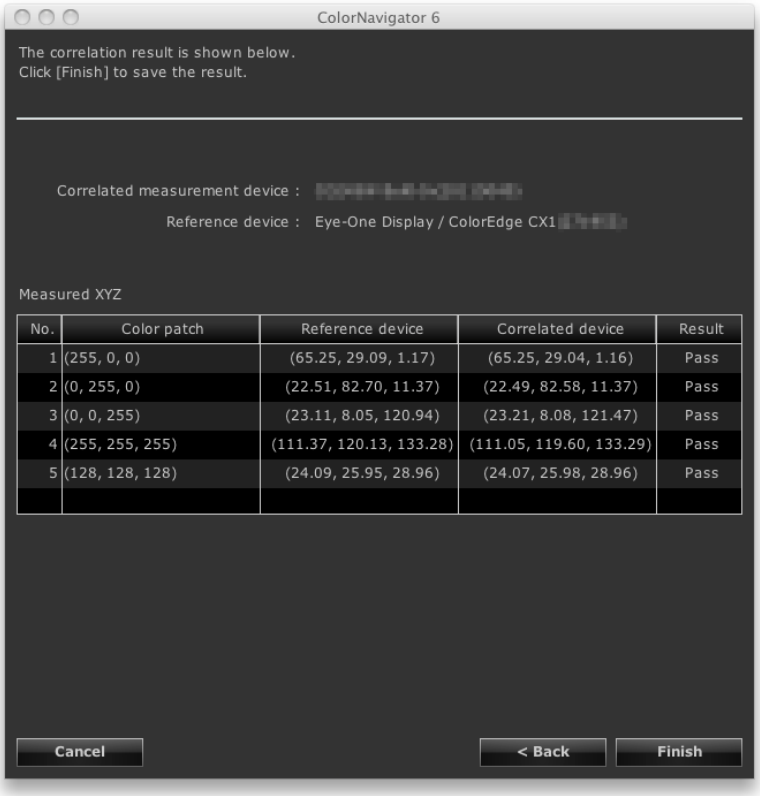

ColorNavigator 6
Start the correlation. Slightly tilt the LCD panel up and attach the measurement device to the window, then click [Proceed].
Correlation takes approx. 2 to 3 minutes.
The correlation result may be affected by ambient light entering the sensor part of the built-in sensor.
Check the following points before beginning correlation.
* Use a curtain or the like to block any windows so that natural (outside) light does not enter the room.
Proceed
Cancel
< Back
Next >

Attention

- When ColorMunki is connected to the computer, turn the rotary disk to monitor measurement mode.
- The correlation result may be affected by ambient light entering the sensor part of the built-in calibration sensor. Check the following points before beginning correlation.
  - Use a curtain or the like to block any windows so that natural (outside) light does not enter the room.
  - Ensure that the lighting in the room does not change during correlation.
  - It is recommended that the monitor hood be attached.
- The figure displayed in this window depends on the type of measurement device connected to the computer.

5. Confirm the result

After completing the correlation, the RGB value of the measured color patch and the measurement results of the reference measurement device and the correlated measurement device are displayed.


ColorNavigator 6
The correlation result is shown below.
Click [Finish] to save the result.
Correlated measurement device :
Reference device : Eye-One Display / ColorEdge CX1
Measured XYZ
No. | Color patch | Reference device | Correlated device | Result
1 | (255, 0, 0) | (65.25, 29.09, 1.17) | (65.25, 29.04, 1.16) | Pass
2 | (0, 255, 0) | (22.51, 82.70, 11.37) | (22.49, 82.58, 11.37) | Pass
3 | (0, 0, 255) | (23.11, 8.05, 120.94) | (23.21, 8.08, 121.47) | Pass
4 | (255, 255, 255) | (111.37, 120.13, 133.28) | (111.05, 119.60, 133.29) | Pass
5 | (128, 128, 128) | (24.09, 25.95, 28.96) | (24.07, 25.98, 28.96) | Pass
Cancel
< Back
Finish

Note

- When using another measurement device as a reference for correlation, or when performing the correlation again, click "Back" to display setting window.

6. Click "Finish"

The correlation of the built-in calibration sensor is completed.

Attention

- If there is any problem with the correlation results, an error message is displayed. Follow the message to perform the correlation again.

Note

- The correlation result is added to the measurement results of the built-in calibration sensor. Therefore, adjustment of the monitor after the correlation is recommended.

11-3. Setting the SelfCalibration Schedule

The SelfCalibration schedule can be set for the monitors with the built-in calibration sensor.

1. Adjust the monitors with built-in calibration sensor

Adjust the monitor according to the steps of "Chapter 4 Adjusting Monitor" (page 21). Create the adjustment target as needed.

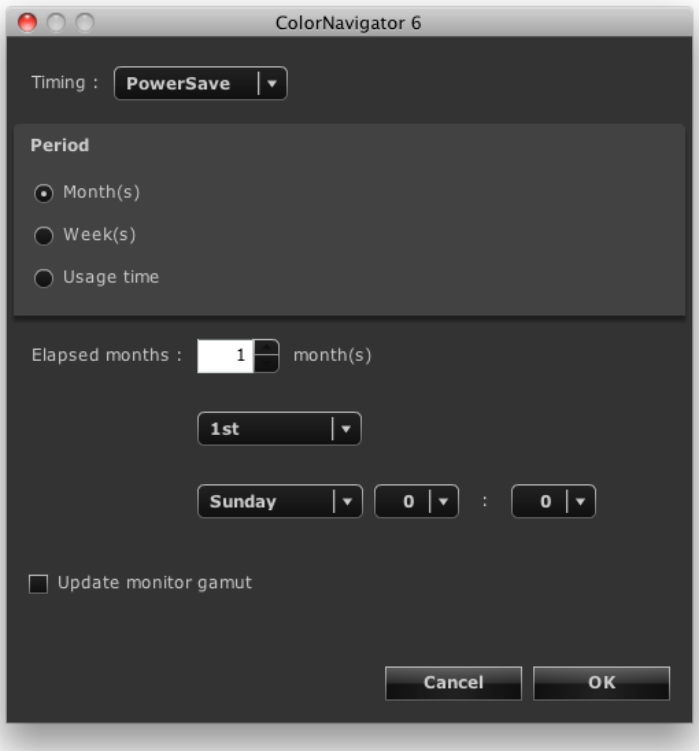
Attention

- Since adjustment accuracy of the monitor by SelfCalibration may be affected, use the following measurement devices when making any adjustments.
  - Built-in calibration sensor
  - Reference measurement device used by the correlation function

2. Open the main window

3. Select "SelfCalibration schedule" from "Advanced"

The SelfCalibration schedule setting window appears.

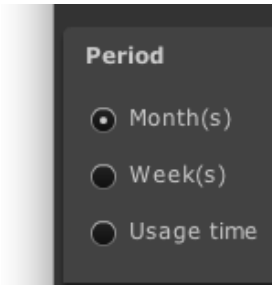


4. Set the SelfCalibration schedule

Set the execution timing of SelfCalibration after the time period set in the schedule has elapsed.

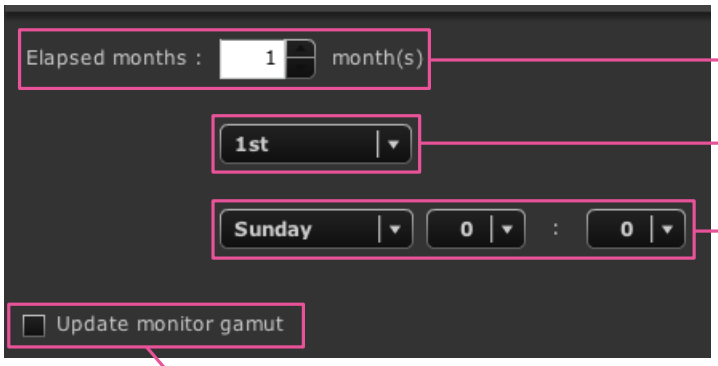
Setting	Setting Detail
Immediately	Executes immediately.
PowerSave	Executes when the mode initially switches to power save, or if the power initially switches off.
Off	SelfCalibration is not executed.

Set "Period" according to the frequency in which SelfCalibration is performed.



Period	Setting Range	Execution Frequency
Month(s)	1 - 12 months	Once every few months
Week(s)	1 - 5 weeks	Once every few weeks
Usage time	50 - 500 hours	Once every few hours (monitor usage time)

Set the interval between the completed SelfCalibration and the next execution. Setting details differ according to the set type.



Sets the value according to the period selected.

(For Month(s) only) Sets the day of the week which SelfCalibration is performed.

(For Month(s) and Week(s) only) Sets the day of the week and month which SelfCalibration is performed.

The color gamut of the monitor is updated (page 63) when SelfCaibration is executed.

Attention

- Use SelfCalibration in order to sustain ColorNavigator adjustments.
- The color profile of the system is not updated when SelfCalibration is executed. When the color profile needs to be updated, use ColorNavigator to make the adjustments.
- The timer (page 40) operation is unaffected by SelfCalibration schedule.

11-4. Using the Timer Setting with SelfCalibration Schedule

Monitor quality can be controlled efficiently if the timer setting (page 40) and SelfCalibration schedule are both used.

Sample Scheduling

1. Perform correlation and monitor adjustment when a monitor with built-in calibration sensor is installed

For details of the correlation, see “11-2. Correlate with the Reference Measurement Device” (page 65).

For details of the monitor adjustment, see “Chapter 4 Adjusting Monitor” (page 21).

2. Set the SelfCalibration period to 1 - 2 months

Set the calibration to be executed during times when the monitor is not being used, such as at night.

3. Set the timer to 1000 hours.

Note

- It is effective to have the SelfCalibration and the monitor validation executed at the same time.

Chapter 12 Reference

12-1. Using ColorNavigator in Multiple Monitor Environment

If you use ColorNavigator in a multiple adjustable monitor environment, select a monitor to run ColorNavigator.

Attention

- The built-in calibration sensor can be used to adjust and validate the monitors with built-in calibration sensor.
- When several same type monitors with built-in calibration sensor are connected, select the monitor and built-in calibration sensor using the serial number of the monitor.
- If your OS is Windows Vista, the following settings are required in a multiple monitor environment.
  1. Select “Control Panel” - “Appearance and Personalization” - “Personalization” - “Adjust screen resolution”.
  2. The “Display Settings” dialog box appears.
  3. Check the “Extend the desktop onto this monitor” check box for all monitors.

How to Use

1. Select a monitor

The software shows the following window after starting ColorNavigator. Move the software window to the screen of the monitor you want to adjust and click “OK”.

ColorNavigator 6
Adjust the monitor displaying "ScreenManager" or "Information".
Drag this window to the monitor and click [OK].
If you want to select another monitor, click [Next monitor].
Next monitor
Cancel
OK

2. Select a function

The main window is displayed. Select a function. The process for each function is the same as that in a single monitor environment.

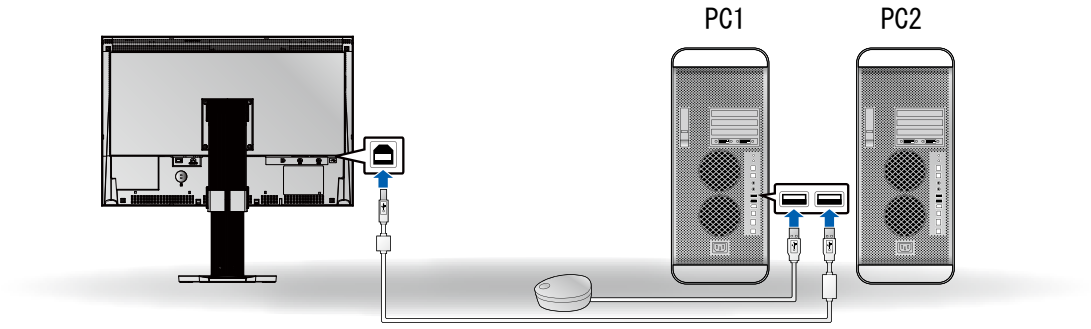
3. Run ColorNavigator on the second monitor

When calibration is completed, the main window appears. Press “Select another monitor” and repeat the process for the second monitor.

12-2. Adjusting Monitor Having Dual Input

This section describes the procedure of the adjustment when one monitor is connected to two computers (referred to as PC1, PC2).

1. Adjust PC1



Connect PC1 and the monitor with USB cable.

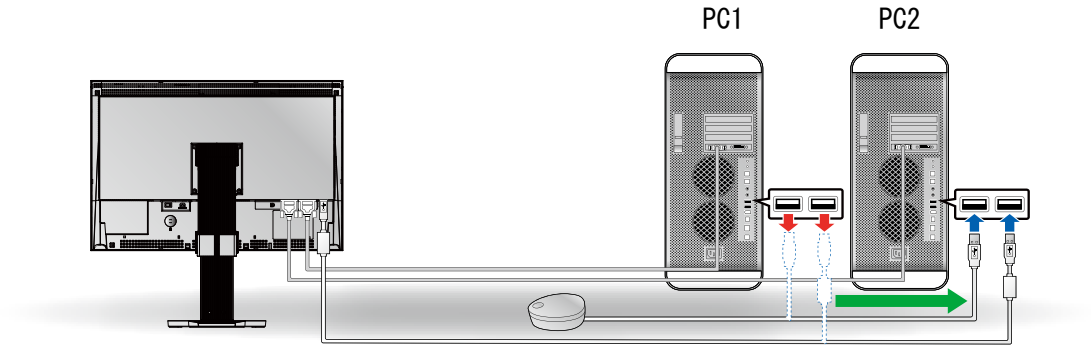
Connect PC1 and a measurement device with USB cable.

Switch the signal of the monitor to the one of PC1.

Adjust the monitor with ColorNavigator installed to PC1.

When adjustment is completed, quit ColorNavigator.

2. Adjust PC2



Connect PC2 and the monitor with USB cable.

Connect PC2 and a measurement device with USB cable.

Switch the signal of the monitor to the one of PC2.

Adjust the monitor with ColorNavigator installed to PC2.

When adjustment is completed, quit ColorNavigator.

3. Adjustments of PC1 and PC2 are completed

When PC1 or PC2 needs to be adjusted again, adjust the PC connecting to monitor and measurement device with USB cable.

Note

- Since the adjustment result is saved in the input signal of each monitor, monitor adjustments are not needed each time the input signal is switched.
- If the monitor has two or more CAL modes, the monitor adjustment results are registered in different CAL modes according to the input signals.
- In the default setting, the selectable CAL mode varies with the input signal. Due to this, monitor adjustments are not needed each time the input signal is switched.
- Do not switch the monitor during while running ColorNavigator. The adjustment result will not be saved.

12-3. Using ColorNavigator Agent

ColorNavigator Agent is a resident function within the system that allows you to use the ColorNavigator functions without displaying the main window.

● Available Functions

- Changing adjusted target
- Displaying warning for timer
  A message is displayed when the operating time of the monitor specified in the timer (page 40) has elapsed.
- Displays warning for resolution (page 86) when system starts up
- Displaying main window
- Monitoring video card gamma

● Active Icon

The icon is displayed in the notification area (Windows) or in the dock (Mac OS X) while ColorNavigator Agent is in active.

The color of the icon changes according to the operating status.

Normal		• ColorNavigator Agent is running normally. - ColorNavigator can be started up. - Adjusted target can be changed.
Warning		• The operating time of the monitor after adjustment exceeds the timer threshold. - ColorNavigator needs to be start up and readjusted. • The profile associated with the adjustment target by using ColorNavigator or ColorNavigator Agent is not associated with the current system. - The monitor needs to be readjusted with starting ColorNavigator, or be changed to the adjusted target.
Quiescent		• ColorNavigator is running. - ColorNavigator Agent cannot be operated until quitting ColorNavigator.

Attention

- If your OS is Windows XP, the icon may always be Warning status with some graphics board in a multiple monitor environment.

● Set ColorNavigator Agent During System Start Up

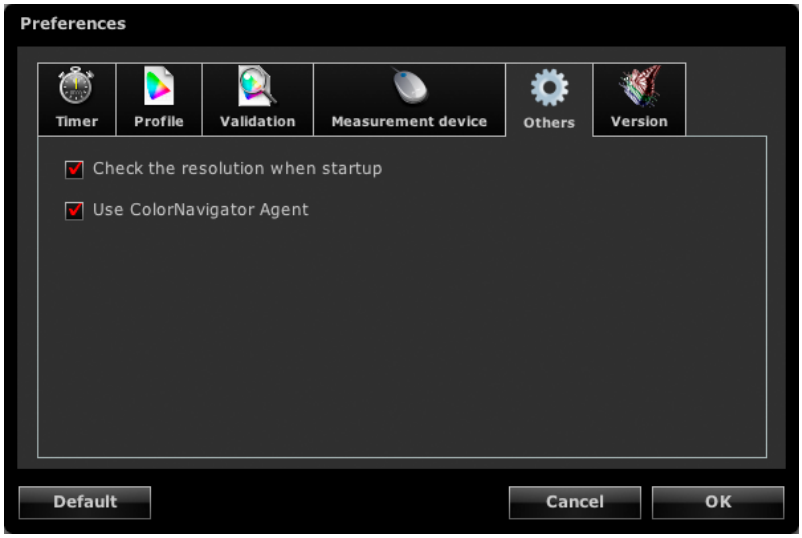
By default, when the system starts up, ColorNavigator Agent also starts running as resident software. Set the startup of ColorNavigator Agent according to the following procedure.

1. Open the main window

2. Click “Preferences”

The “Preferences” dialog box appears.

3. Click “Others” in the toolbar



4. Check the “Use ColorNavigator Agent” check box to run ColorNavigator Agent as resident software from system startup

The check box is checked by default.

● Changing Adjusted Target

By changing adjusted targets you can change the setting of the monitor and register the profile to the system easily.

1. Open the setting menu

Macintosh

Right- click ColorNavigator icon on Dock.

Windows

Right- click ColorNavigator icon in the notification area.

2. Select the adjusted target to be set

When connecting multiple monitors that are adjustable, select the monitor of which adjusted target to be changed and then select the adjusted target.

Selecting an adjusted target changes the setting of the monitor and registers a profile to the system.

Attention

- Unadjusted target is not shown.
- Start ColorNavigator to perform readjustment or validation.
- In the following circumstances, the adjusted target cannot be changed.
  - When logging on with a Limited User Account in Windows XP
  - When the destination folder of the profile is specified as the "User specified folder" on Windows Vista
- When the monitor is CG232W, if you apply the adjustment result to the SDI input signal, click "Yes" in "Do you want to apply the adjustment result to the SDI input signal?".

● Starting ColorNavigator

ColorNavigator can be started from ColorNavigator Agent.

1. Open the setting menu

Macintosh

Right- click ColorNavigator icon on Dock.

Windows

Right- click ColorNavigator icon in the notification area.

2. Select "Start ColorNavigator"

ColorNavigator starts up.

Attention

- ColorNavigator Agent cannot be operated while running ColorNavigator.

● Monitoring Video Card Gamma

The video card gamma may be changed due to other software or drivers. When ColorNavigator Agent is activated, it is possible to make settings for monitoring the status of the video card gamma and also for the operation to be performed when any change is detected. For details of the video card gamma, see “Chapter 14 Glossary” (page 88).

● Set Operation for Detected Change

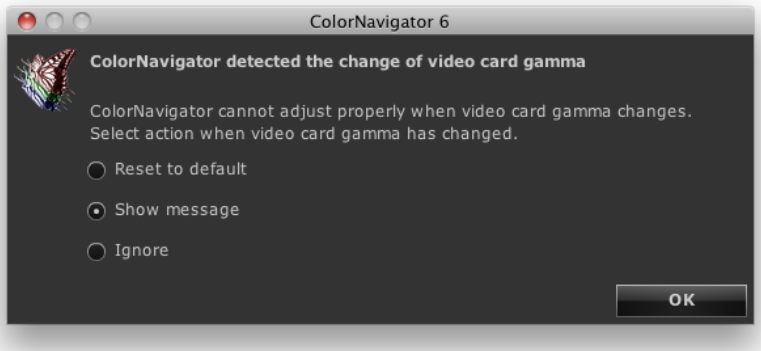
A window appears when the status of the video card gamma is changed. Set the operation in the window displayed.

1. When the status of the video card gamma is changed, the setting window appears

2. Select “Monitoring video card gamma”

Select an operation from among alternatives.

Item	Setting
Reset to default	Returns the status of video card gamma to the previous one. (Recommended)
Show message	Displays message when the video card gamma is changed.
Ignore	Holds the video card gamma as changed status.


ColorNavigator 6
ColorNavigator detected the change of video card gamma
ColorNavigator cannot adjust properly when video card gamma changes.
Select action when video card gamma has changed.
Reset to default
Show message
Ignore
OK

Attention

- Depending on the types of graphics boards, the status of the video card gamma may not be monitored.

12-4. Managing Adjusted Targets.

● Applying Adjusted Target to Monitor

Adjustment targets with green or red marks in the main window indicate the target that has been adjusted once. When selecting one of these adjusted targets from the list, the adjustment target is switched.

Note

- When the monitor is CG232W, if you apply the adjustment result to the SDI input signal, click “Yes” in “Do you want to apply the adjustment result to the SDI input signal?”.
- For the mark colors, see “About Marks” (page 9).
- When ColorNavigator Agent is resident, the adjusted target can be applied to the monitor without displaying the main window. For details, see “12-3. Using ColorNavigator Agent” (page 74).

● Changing Name of Adjustment Target

The name of adjustment target can be changed by double-clicking the adjustment target.

● Deleting Adjustment Target

Unnecessary adjustment target can be deleted.

Note

- If an adjustment target is deleted, all related validation result is also deleted.
- Deleted adjustment target cannot be restored.

1. Select an adjustment target to be deleted

2. Select “Delete”

The adjustment target is deleted.

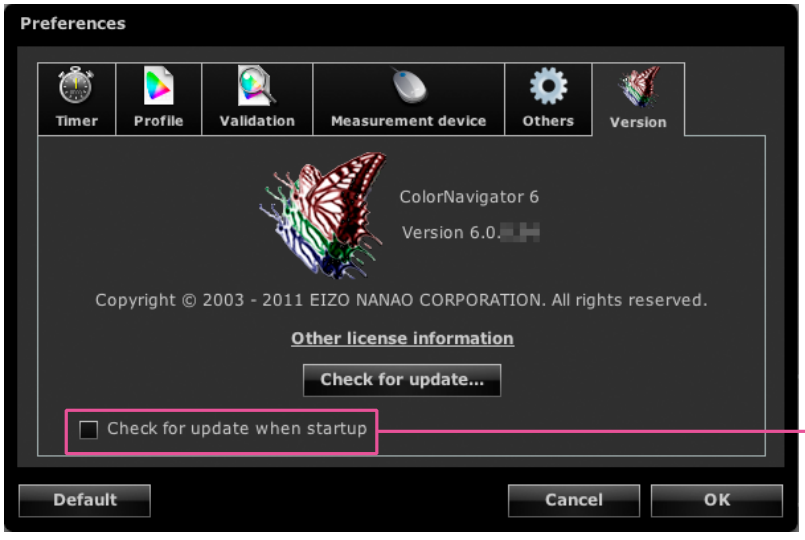
12-5. Checking the Latest Software

1. Open the main window

2. Click “Preferences”

The “Preferences” dialog box appears.

3. Click “Version” in the toolbar



When the box is checked, the availability of an update is checked during ColorNavigator startup.

4. Select “Check for update”

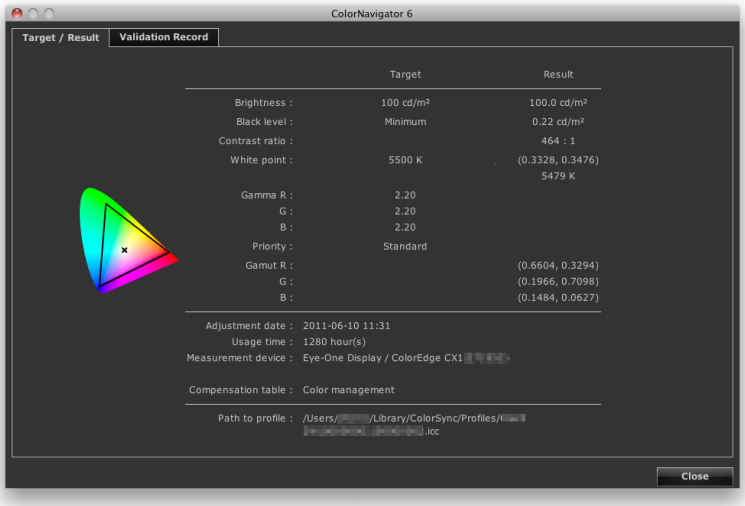
When an update is available, a notification window appears.

12-6. Displaying Detailed Information of Adjustment Target / Result and Validation Record

1. Open the main window

2. Click “Detail”

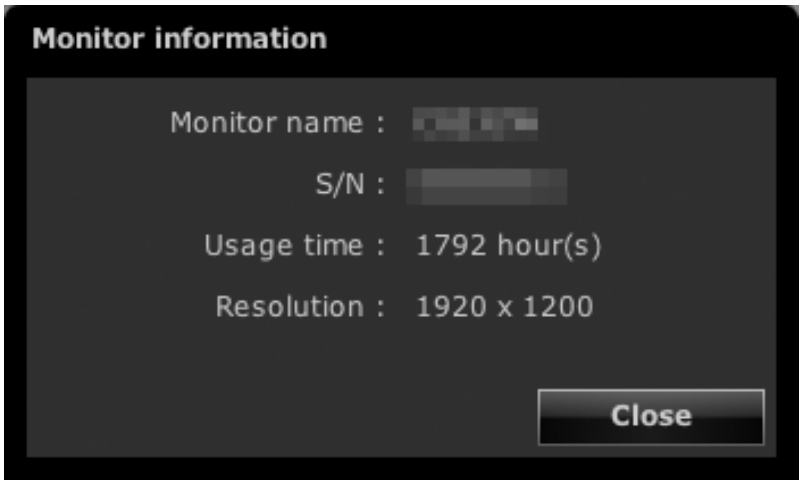
Detailed information of the adjustment target / result and validation records is displayed.



12-7. Other Functions

● Showing Monitor Information

Information related to the monitor that displays the main window can be displayed. Select “Monitor information” from “Help” in the main window to display it.



● Displaying Test Patterns

The test pattern to visually check the adjustment status can be displayed. It allows you to check that grayscale images do not contain any color as well as that the gamma value has been set correctly.

Attention

- Note that the gamma may not be checked correctly as this is a visual confirmation.
- The gamma confirmation can be executed during the operation at the recommended resolution of the monitor. About the recommended resolution of the monitor, see the user's manual of the monitor.

1. Open the main window

2. Select "Test pattern" from "Advanced"

The test pattern appears. When you click on the test pattern, it closes.

12-8. File Format

ColorNavigator can load the following text file formats.

● LUT File for Gamma Adjustment Target

- The file extension is CSV.
- Records one numeric value per line.
- Records 256 numeric values.
- Records real numbers greater than "0".
- The 256th value should be the highest in the record.

● Validation Target for RGB Type

- Comma-delimited text file with extension (csv)
- Records the red, green, and blue values in order from the left in each line.
- The range of the value for red, green and blue are integral number between 0 - 255. Any decimal number is rounded down.
- Sample of validation target file

```
0,0,0
0,0,255
0,255,0
0,255,255
255,0,0
255,0,255
255,255,0
255,255,255
```

● Validation Target for CMYK Type

- Space-delimited text file with extension (TXT)
- Sample of validation target file

```
BEGIN_DATA_FORMAT
CMYK_C CMYK_M CMYK_Y CMYK_K LAB_L LAB_A LAB_B
END_DATA_FORMAT
BEGIN_DATA
0   0   0   0 100.00   0.00   0.00
0   0   0 100  16.91   0.04   0.53
0   0 100   0  93.70  -5.22  98.22
0   0 100 100  17.18  -3.88  10.17
0 100   0   0  50.84  77.40  -1.91
0 100   0 100  12.43  13.45   2.80
0 100 100   0  50.03  71.21  51.21
0 100 100 100  13.29   6.35   6.29
100   0   0   0  58.18 -38.73 -50.39
100   0   0 100  11.94  -7.07  -9.99
100   0 100   0  53.04 -69.67  28.11
100   0 100 100  13.22 -12.75   3.02
100 100   0   0  25.87  20.55 -46.91
100 100   0 100   9.49   6.30  -4.03
100 100 100   0  24.76   0.10   0.61
100 100 100 100  10.80  -0.61   1.91
END_DATA
```

- Place this part above the lines from “BEGIN_DATA” to “END_DATA”.
- This part describes the order of CMYK and L*a*b* components.

CMYK_C	Cyan
CMYK_M	Magenta
CMYK_Y	Yellow
CMYK_K	Black (Key)
LAB_L	L*
LAB_A	a*
LAB_B	b*

- This part describes the color patch values.
- Use a numeric value ranging from 0 to 100 to express CMYK and L*.

Chapter 13 Troubleshooting

13-1. Problems and Remedies

If a problem still remains after applying the suggested remedies, contact your local dealer.

Problem	Possible cause and remedy
1. Software cannot be installed.	• Check the system requirements of ColorNavigator. • Check whether the system meets the requirements for operation described in “2-1. System Requirements” (page 10).
2. Neither gamma nor black level can be adjusted manually.	• When the “Priority” for gamma adjustment has been set to “Gray balance” or “Standard”, you cannot adjust the black level or gamma manually.
3. The LUT gamma file or the color patch file cannot be loaded.	• Check whether the file to be loaded meets the format specified in “12-8. File Format” (page 80).
4. The monitor is not recognized as an adjustment capable monitor.	• Check whether the monitor meets the requirements for operation described in “2-1. System Requirements” (page 10). • If you use a ColorEdge series monitor that does not meet the requirements for operation, use the previous version of ColorNavigator.

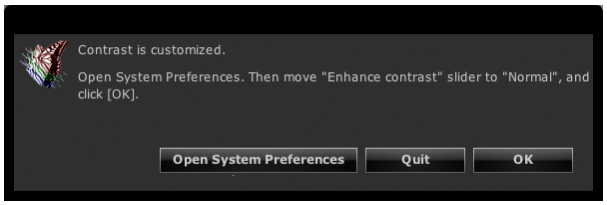
13-2. Error Messages

Find the following description if a message appears while running ColorNavigator.

Messages	Points to check / Description
Initialization Error:	
• Set monitor color to 16.7 million colors or more to start up ColorNavigator.	• Check the system requirements of ColorNavigator. • Check whether the system meets the requirements for operation described in “2-1. System Requirements” (page 10).
• The adjustment capable monitor cannot be found. The monitor cannot be adjusted with the current status.	• Confirm that all the devices, that are necessary to start up ColorNavigator, are detected by System Profiler (Macintosh) or Device Manager (Windows). • If the monitor is CG232W, check whether the DVI or D-SUB input signal is displayed. • Check the USB connection of the monitor and measurement device. • Check whether the ColorEdge series monitor is connected. • Check whether the monitor meets the requirements for operation described in “2-1. System Requirements” (page 10).
• Failed to detect measurement device	• Check the USB connection of the measurement device. • Check whether the measurement device used satisfy the system requirements described in “2-1. System Requirements” (page 10). • When there is an error in detecting the built-in calibration sensor, turn off the main power of the monitor with the built-in calibration sensor and wait for a few minutes before turning the power back on.
• Check the measurement device is placed on the white ceramic tile of base plate firmly then click “Initialize”. • Check the measurement device is placed on the flat and opaque surface then click “Initialize”. • Turn the rotary disk to initialization position then click “Initialize”.	• Check whether the measurement device is placed on the base plate. • Check whether the measurement device is placed preventing light from steeping through the sensor. • Check whether the rotary disk is turned to initialization mode when ColorMunki is connected to the computer.
Measurement Error / Adjustment Error / File Error:	
• Select another white point, or retry “Proceed”.	• Check whether the target of white point is set between 0.24 and 0.45 for x-coordinate and y-coordinate.
• Check the measurement device firmly attached to the measurement window, then click “Proceed”.	• Attach the measurement device to the measurement window firmly.
• Avoid operating any function of the monitor while running ColorNavigator.	• If the monitor is operated while ColorNavigator is in active, the software operation may end in failure.
• Failed to generate a profile. Retry “Save”.	• Rename and retry save.
• Failed to load validation target.	• Check whether the readable validation target file is selected. (See “12-8. File Format” (page 80).)
• Failed to save the adjustment target. Retry “Export”.	• Rename the file to be saved, or change the destination folder or drive.
• The selected file doesn’t contain valid target value.	• Check whether the selected file contains the correct adjustment target.
Measurement Error / Adjustment Error / File Error:	
• Failed to save the adjustment data. Check whether you have the write permission by referring to the information of XXX folder.	• Set your access permission to “Read & Write” in the information window of the folder.

Messages	Points to check / Description
Communication Error:	
• Restart the software and retry operation.	• Check whether the USB cable of the monitor and measurement device is connected. Avoid disconnecting the USB cable while adjusting the monitor.
Other Errors:	
• The rotary disk mode is wrong.	• Check the rotary disk position of ColorMunki.
• Failed to adjust the monitor. Close the message, then click “Cancel” and readjust the monitor. • Failed to measure the target. Close the message, then click “Back“ and readjust the monitor. • Failed to validate the profile. Close the message, then retry validation.	• The initialization of the measurement device may be failed. Initialize the measurement device again, and retry operation.
• Supported light booth was not found. Operation is canceled.	• Check whether the light booth and computer are correctly connected with USB cable.
• ColorNavigator Core unexpectedly quit.	• Reboot the PC.
Universal Access Warning (Mac OS X Only):	
• Contrast is customized. • Color is reversed. • Grayscale is used.	• See “13-3. Universal Access Warning (Mac OS X Only)” (page 85).
Resolution Warning:	
• Current resolution is not recommended.	• See “13-4. Resolution Warning” (page 86).

13-3. Universal Access Warning (Mac OS X Only)


Contrast is customized.
Open System Preferences. Then move "Enhance contrast" slider to "Normal", and click [OK].
Open System Preferences
Quit
OK

When the part of the universal access function is enabled, the function required to be disabled because the monitor cannot be adjusted correctly.

● How to Disable Universal Access

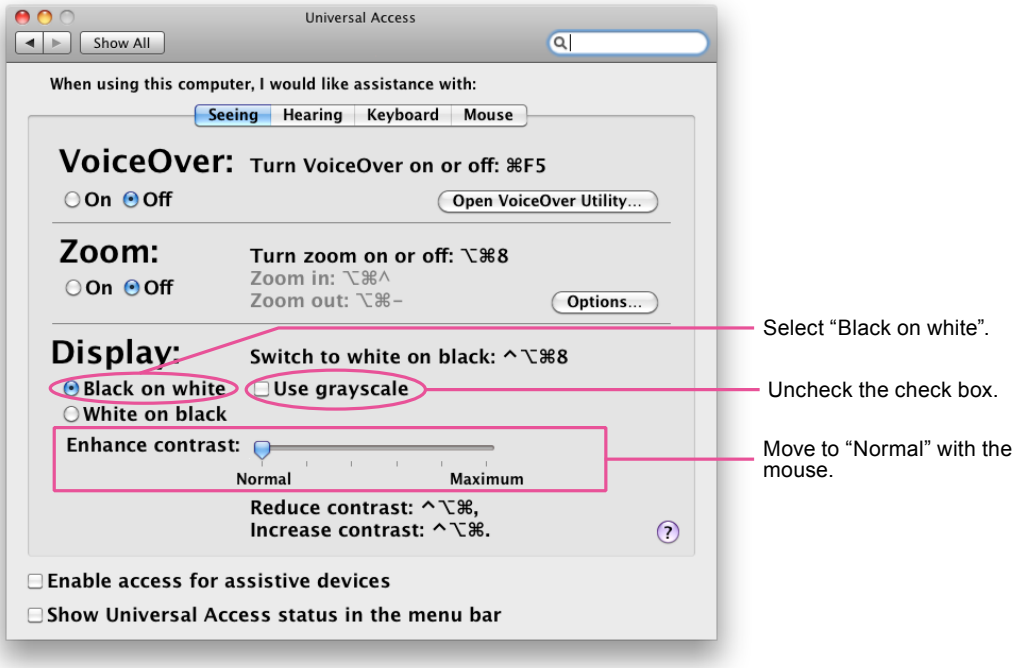
Disable the function as follows: (The Mac OS X 10.5 image captures are given as example.)

1. Click “Open System Preferences”

Note

- System Preferences can be open by selecting “System Preferences” from Apple menu. Click “Universal Access” to open the Universal Access window.

2. Confirm the universal access function is disabled



Attention

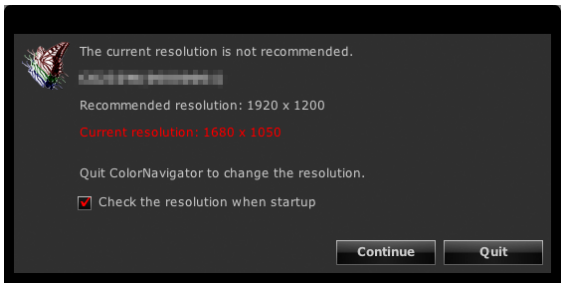
- To disable the enhance function of the contrast, move the slider of “Enhance contrast” to “Normal” with mouse dragging. The slider may not be moved completely to “Normal” with keyboard.
- When using zoom function, the measurement pattern may not be shown in the sensor section of the measurement device even though ColorNavigator runs. Quit the zoom function before performing adjustment or validation.

13-4. Resolution Warning

When checking the resolution of the monitor at ColorNavigator startup, and if the resolution is not recommended one, the warning message appears.

● About Warning Message

Click “Continue” to use ColorNavigator without changing the resolution.
When using ColorNavigator after changing the resolution, click “Quit” and change the resolution, then restart ColorNavigator.


The current resolution is not recommended.
Recommended resolution: 1920 x 1200
Current resolution: 1680 x 1050
Quit ColorNavigator to change the resolution.
Check the resolution when startup
Continue
Quit

Attention

- When changing the resolution without quitting ColorNavigator, it may cause the malfunction of ColorNavigator.

Note

- When the resolution differ from the recommended one, characters and lines may be blurred but there is no problem for the operation of ColorNavigator.
- When the DPI setting has been modified on the PC, the message may appear.

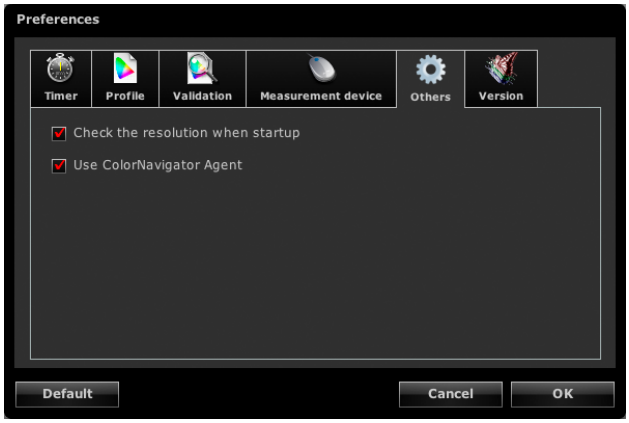
● Setting How to Display Resolution Warning at ColorNavigator Startup

1. Open the main window

2. Click “Preferences”

The “Preferences” dialog box appears.

3. Click “Others” in the toolbar



4. Check the “Check monitor resolution when starting” check box to check the resolution of the monitor at the system startup

The check box is checked by default.

Note

- By using the resident software ColorNavigator Agent, the resolution of the monitor can be checked at the system startup. For details, see “12-3. Using ColorNavigator Agent” (page 74).

Chapter 14 Glossary

6 Colors

The saturation and hue of the three primary colors (Red, Green, Blue) and the additive colors (Yellow, Cyan, Magenta) of the monitor can be adjusted separately. This produces an effect when you want to adjust only particular color and suit the view to the printing one without changing whole color of the image.

ΔE (Delta E)

It is numerical value of the difference between two colors and calculated in CIELAB color space. There are various calculation methods. For monitor validation, a method can be selected from CIE1976, CIE1994 or CIE2000.

Fogra

An organization of Germany that performs researches, developments and validations related to printing. They have provided various standards for printing.

Gain Adjustment

Adjusts each color parameter for red, green and blue. An LCD monitor displays the color by the light passing through the panel color filter. Red, green and blue are the three primary colors. The colors on the monitor are displayed by combining these three colors. The color tone can be changed by adjusting the light intensity (volume) passing through each color's filter.

Gamma

Generally, the relationship that the light intensity values of a monitor change nonlinearly to the input signal level is called "Gamma Characteristic". On the monitor, low gamma values display the whitish images and high gamma values display the high contrast images.

GRACoL (General Requirements for Applications in Commercial Offset Lithography)

The standard of digital color proof for commercial sheet fed offset printing provided by IDEAlliance.

IDEAlliance (International Digital Enterprise Alliance)

IDEAlliance is a nonprofit membership organization of U.S.A. that promotes the efficiency of business with advanced technology in the area of media, publishing and content.

L*

L* is a lightness value based on the CIELUV and CIELAB color spaces. CIELUV and CIELAB are color spaces that describe the relationship between color and human vision, in which L* corresponds to perceived brightness.

LUT (Look up Table)

The gamma characteristic may be represented numerically for example as $y=x^{\gamma}$. Though, a table is used whenever the characteristic cannot be represented in this way. This table is called LUT (Look up Table). On the monitor profile, the gamma characteristic may be described either numerically or by LUT. Profile is selected during the gamut setting of ColorNavigator. LUT will appear when the gamma characteristic of the selected profile is described by LUT.

Resolution

A measurement that defines the clarity with which an image can be represented. It is defined by the number of pixels which can be displayed per line multiplied by the number of lines on the screen such as "1024 × 768". The more number of pixels, the more information the image has.

sRGB (Standard RGB)

"International Standard for Red, Green, and Blue color space". A color space was defined with the aim of the color matching between applications and hardware devices, such as monitors, scanners, printers and digital cameras. As a standard default space, sRGB allows Internet users to closely match colors.

SWOP (Specifications Web Offset Publications)

The standard for commercial web offset printing provided by IDEAlliance.

Temperature

Color Temperature is a method to measure the white color tone, generally indicated in degrees Kelvin. At high temperatures the white tone appears somewhat blue, while at lower temperatures it appears somewhat red. Computer monitors generally give best performance at high temperature settings.
5000 K: Slightly reddish white (usually used in print industry)
6500 K: White called daylight color (suited for displaying photos and web browsing)
9300 K: Slightly bluish white (usually used for television)

Video Card Gamma

The data used to correct the signal output from the computer. Software calibration corrects the monitor by using the video card gamma. Because ColorNavigator does not use video card gamma, if the video card gamma has been changed by other software, the adjustment result may not be reflected correctly.

WAN-IFRA

World Association of Newspapers and News Publishers. This is an international organization consisting of news media and publishing companies, and provides standards for newspaper printing.

Appendix

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